

TOSHIBA

FILE NO. 810-200646GR

SERVICE MANUAL



HDD/DVD VIDEO RECORDER ***RD-85DTSB***



The above models are classified as green products (*1), as indicated by the underlined serial numbers. This Service Manual describes replacement parts for the green products. When repairing these green product(s), use the part(s) described in this manual and lead-free solder (*2).

For (*1) and (*2), see the next page.

Apr., 2006 GREEN

(*1)

GREEN PRODUCT PROCUREMENT

The EC is actively promoting the WEEE & RoHS Directives that define standards for recycling and reuse of Waste Electrical and Electronic Equipment and for the Restriction of the use of certain Hazardous Substances. From July 1, 2006, the RoHS Directive will prohibit any marketing of new products containing the restricted substances.

Increasing attention is given to issues related to the global environmental. Toshiba Corporation recognizes environmental protection as a key management tasks, and is doing its utmost to enhance and improve the quality and scope of its environmental activities. In line with this, Toshiba proactively promotes Green Procurement, and seeks to purchase and use products, parts and materials that have low environmental impacts.

Green procurement of parts is not only confined to manufacture. The same green parts used in manufacture must also be used as replacement parts.

(*2)

LEAD-FREE SOLDER

This product is manufactured using lead-free solder as a part of a movement within the consumer products industry at large to be environmentally responsible. Lead-free solder must be used in the servicing and repair of this product.

WARNING

This product is manufactured using lead free solder.

DO NOT USE LEAD BASED SOLDER TO REPAIR THIS PRODUCT !

The melting temperature of lead-free solder is higher than that of leaded solder by 86°F to 104°F (30°C to 40°C). Use of a soldering iron designed for lead-based solders to repair product made with lead-free solder may result in damage to the component and or PCB being soldered. Great care should be made to ensure high-quality soldering when servicing this product especially when soldering large components, through-hole pins, and on PCBs as the level of heat required to melt lead-free solder is high.

LASER BEAM CAUTION LABEL



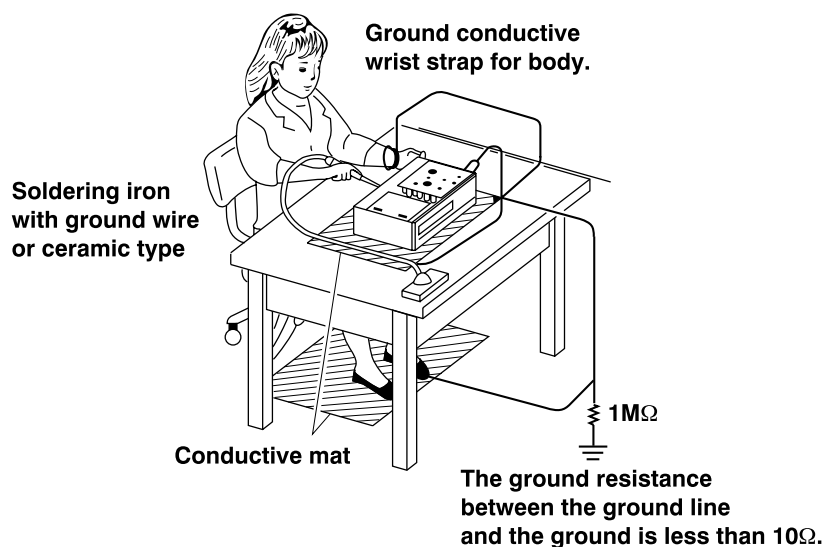
When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of a laser may be received.

PREPARATION OF SERVICING

Pickup Head consists of a laser diode that is very susceptible to external static electricity.

Although it operates properly after replacement, if it was subject to electrostatic discharge during replacement, its life might be shortened. When replacing, use a conductive mat, soldering iron with ground wire, etc. to protect the laser diode from damage by static electricity.

And also, the LSI and IC are same as above.



- Manufactured under license from Dolby Laboratories. “Dolby” and the double-D symbol are trademarks of Dolby Laboratories.
- “DTS” and “DTS Digital Out” are trademarks of Digital Theater Systems, Inc.
- Manufactured under license from QSound Labs, Inc. U.S. patent Nos. 5,105,462, 5,208,860 and 5,440,638 and various foreign counterpart. Copyright QSound Labs, Inc. 1998-2002. QXpander™ is a trademark of QSound Labs, Inc. All rights reserved.

CONTENTS

SECTION 1 GENERAL DESCRIPTIONS

- | | |
|---------------------------|-----------------------------|
| 1. OPERATING INSTRUCTIONS | 2. LOCATION OF MAIN PARTS |
| | 2-1. Location of Main Parts |
| | 2-2. Location of PC Boards |

SECTION 2 PART REPLACEMENT AND ADJUSTMENT PROCEDURES

- | | |
|------------------------------------|--|
| 1. REPLACEMENT OF MECHANICAL PARTS | 1-2. PC Board Replacement |
| 1-1. Cabinet Replacement | 1-2-1. Digital Tuner Module |
| 1-1-1. Top Cover | 1-2-2. Digital PC Board |
| 1-1-2. HDD | 1-2-3. Mother PC Board |
| 1-1-3. Front Panel | 1-2-4. Power PC Board |
| 1-1-4. RAM Dive | 1-2-5. Front (R), Front (L), and Front (Jack) PC Board |
| 1-1-5. Rear Panel | 2. WIRING CONNECTION DIAGRAM |
| 1-1-6. Fan | |

SECTION 3 SERVICING DIAGRAMS

- | | |
|---|---|
| 1. CIRCUIT SYMBOLS AND
SUPPLEMENTARY EXPLANATION | 4-3. Digital Circuit Diagram |
| 1-1. Precautions for Part Replacement | 4-4. Mother Circuit Diagram |
| 1-2. Solid Resistor Indication | 4-4-1. Audio Circuit Diagram |
| 1-3. Capacitance Indication | 4-4-2. Timer Circuit Diagram |
| 1-4. Inductor Indication | 4-4-3. Video Circuit Diagram |
| 1-5. Waveform and Voltage Measurement | 4-5. Digital Tuner Module Circuit Diagram |
| 1-6. Others | 4-5-1. Digital Tuner Module Circuit Diagram (1) |
| 2. PRINTED WIRING BOARD AND
SCHEMATIC DIAGRAM | 4-5-2. Digital Tuner Module Circuit Diagram (2) |
| 3. BLOCK DIAGRAMS | 4-5-3. Digital Tuner Module Circuit Diagram (3) |
| 3-1. Overall Block Diagram | 4-5-4. Digital Tuner Module Circuit Diagram (4) |
| 4. CIRCUIT DIAGRAMS | 4-5-5. Digital Tuner Module Circuit Diagram (5) |
| 4-1. Power Supply Circuit Diagram | 5. PC BOARDS |
| 4-2. Front Circuit Diagram | 5-1. Front Jack PC Board |
| 4-2-1. Front Jack Circuit Diagram | 5-2. Front (L) PC Board |
| 4-2-2. Front Circuit Diagram (R) | 5-3. Front (R) PC Board |
| 4-2-3. Front Circuit Diagram (L) | 5-4. Digital PC Board |
| | 5-5. Mother PC Board |

SECTION 4 PARTS LIST

- SAFETY PRECAUTION
NOTICE
ABBREVIATIONS
1. EXPLODED VIEWS
1-1. Packing Assembly
1-2. Chassis Assembly
2. PARTS LIST

SUPPLEMENT

- The Upgrading Method of DTV Software
1. Use Cable & SW
2. Operation : The First Time
3. Update Check

SECTION 1 GENERAL DESCRIPTIONS

1. OPERATING INSTRUCTIONS

Please refer to the owner's manual about the contents.

2. LOCATION OF MAIN PARTS

2-1. Location of Main Parts

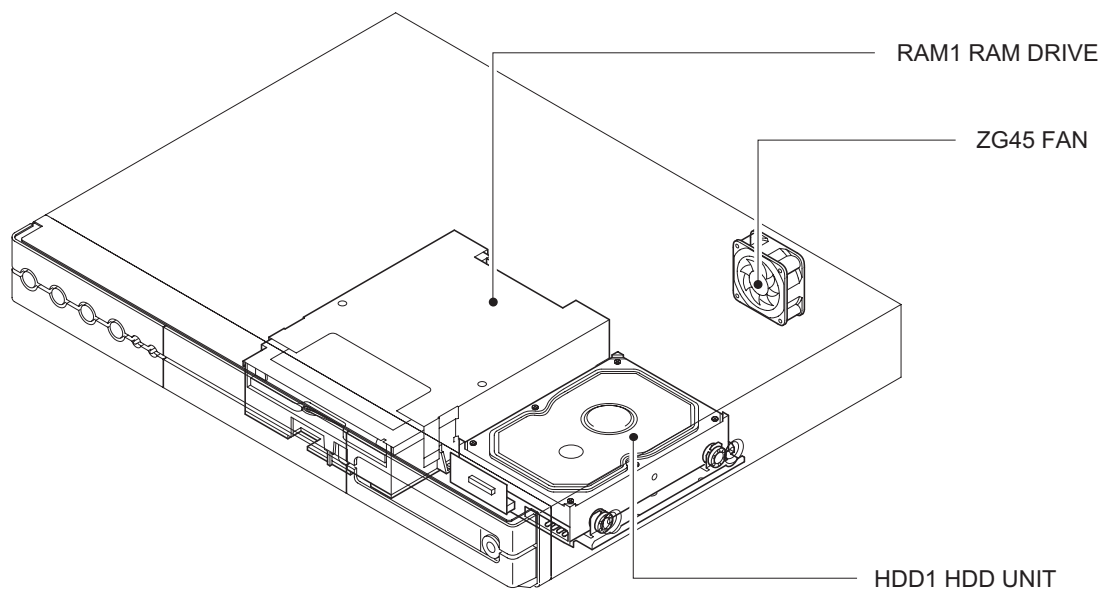


Fig. 1-2-1

2-2. Location of PC Boards

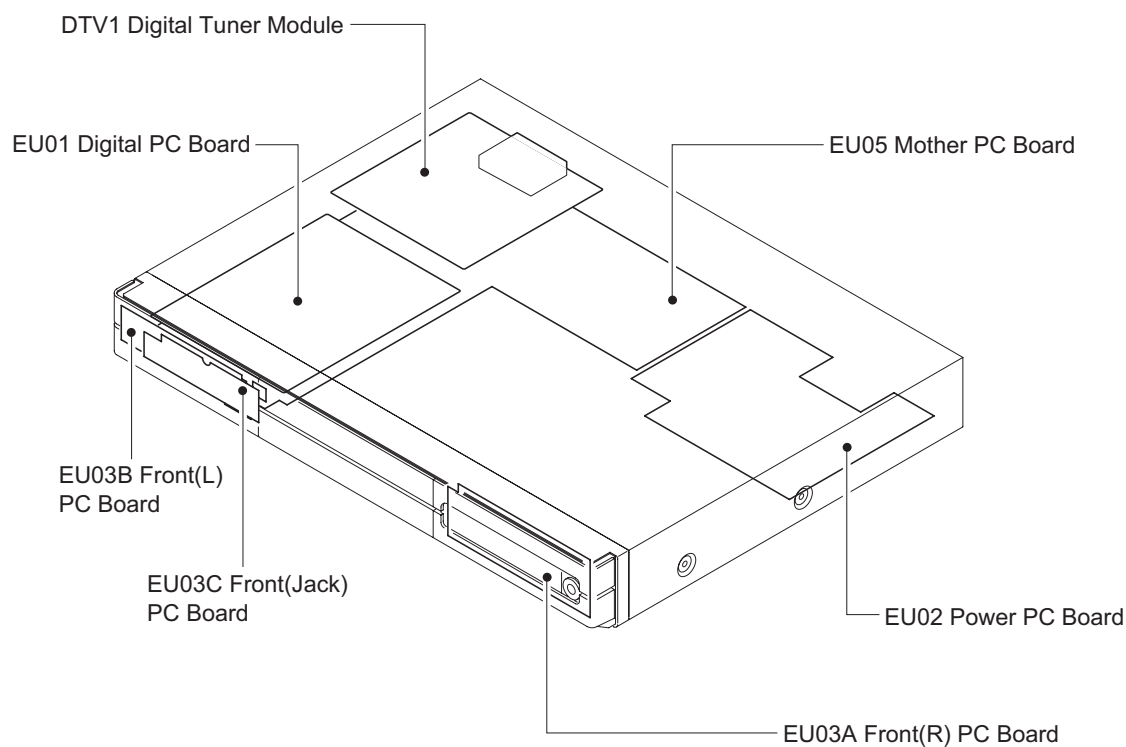


Fig. 1-2-2

SECTION 2

PART REPLACEMENT AND ADJUSTMENT PROCEDURES

CAUTIONS BEFORE STARTING PART REPLACEMENT

Electronic parts are susceptible to static electricity and may easily be damaged, so do not forget to ground as required. Many screws are used inside the unit. To prevent the screws from missing or dropping, etc. always use a magnetized screwdriver in servicing. Several kinds of screws are used and some of them need special cautions. That is, take care of the tapping screws securing molded parts and fine pitch screws used to secure metal parts. If they are used improperly, the screw holes will be easily damaged and the parts can not be fixed.

1. REPLACEMENT OF MECHANICAL PARTS

1-1. Cabinet Replacement

1-1-1. Top Cover

1. Remove seven screws (1), then remove the top cover (2).

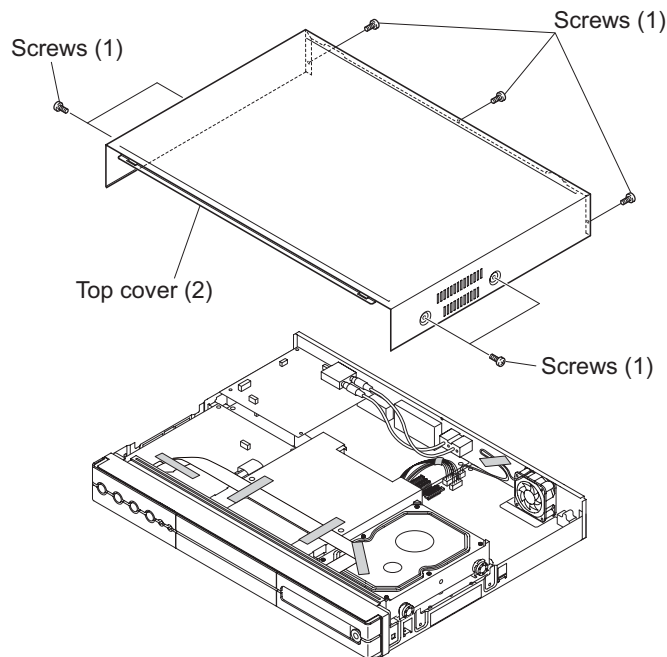


Fig. 2-1-1

1-1-2. HDD

1. Remove the top cover. (Refer to item 1-1-1.)
2. Remove the tape (1).
3. Remove four screws (2).
4. Disconnect the flexible cable (3) and the connector (4).
5. Remove four screws (5), then remove the damper (7) and HDD (8) from the bracket (6).

Note:

- Attach the tapes (1) as they were after the HDD is replaced.

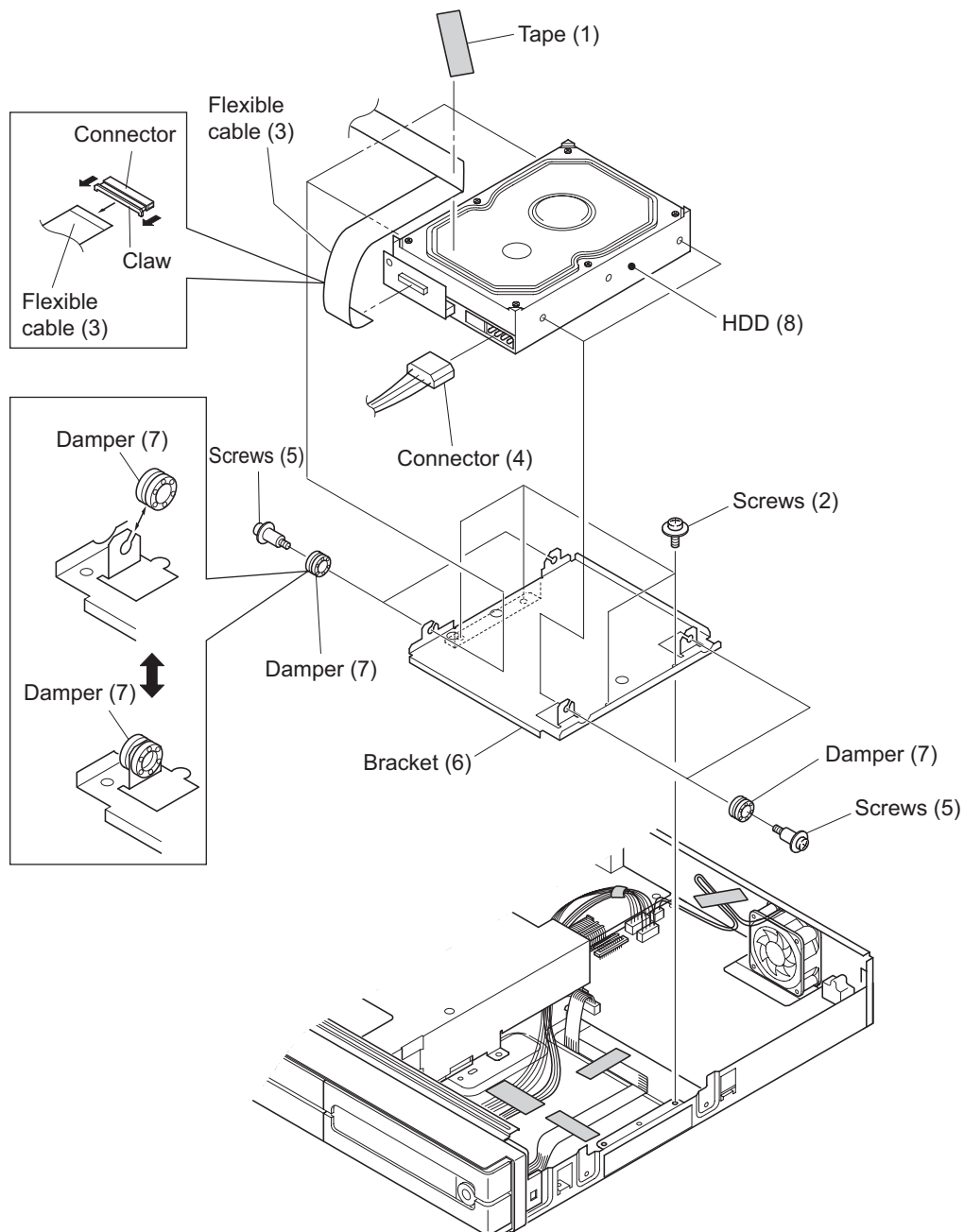


Fig. 2-1-2

1-1-3. Front Panel

1. Remove the top cover. (Refer to item 1-1-1.)
2. Remove the HDD. (Refer to item 1-1-2.)
3. Remove two tapes (1).
4. Disconnect the connector (2) and two flexible cables (3).
5. Remove the screw (4), four claws, then remove the front panel (5).

Note:

- Attach the tape (1) as it was after the front panel is replaced.

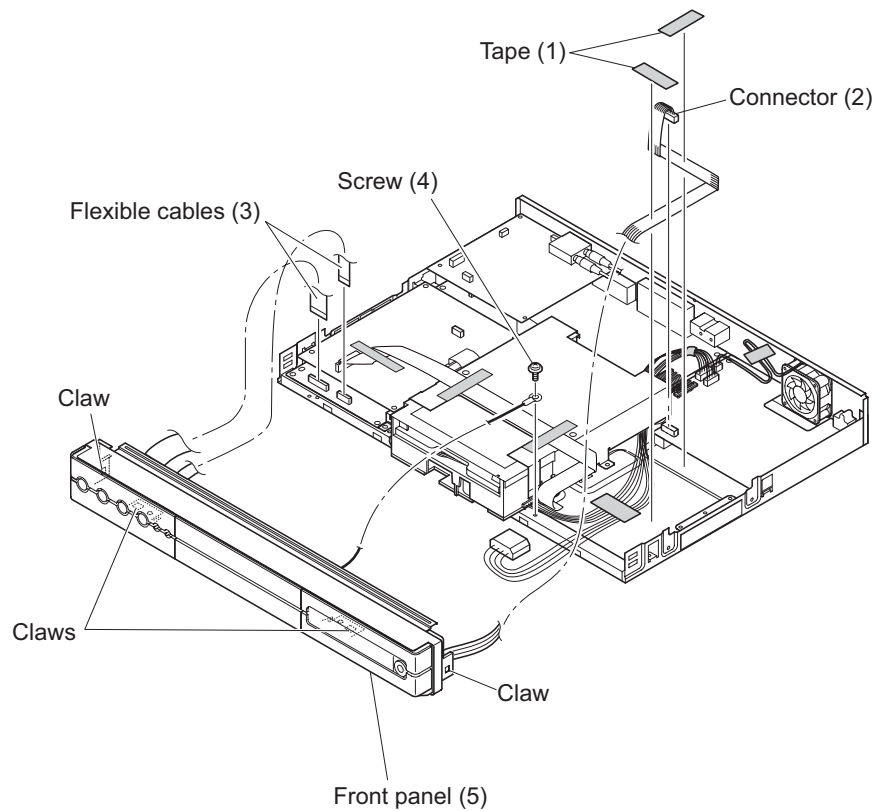


Fig. 2-1-3

1-1-4. RAM Drive

1. Remove the top cover. (Refer to item 1-1-1.)
2. Remove the HDD. (Refer to item 1-1-2.)
3. Remove the front panel. (Refer to item 1-1-3.)
4. Remove the Digital Tuner Module. (Refer to item 1-2-1.)
5. Remove two tapes (1).
6. Remove six screws (2), then remove the RAM drive (3).
7. Disconnect the flexible cable (4) and the connector (5).
8. Remove the shield cover (6) from the RAM drive (3).

Note:

- Attach the tapes (1) as they were after the RAM drive is replaced.

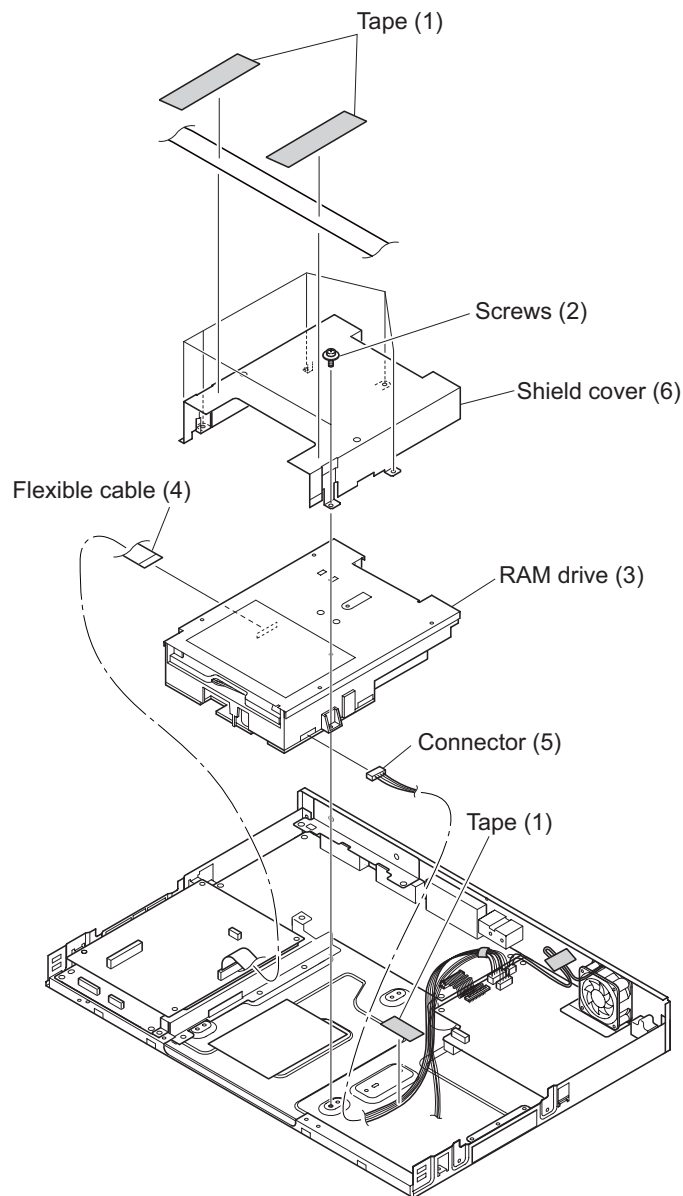


Fig. 2-1-4

1-1-5. Rear Panel

1. Remove the top cover. (Refer to item 1-1-1.)
2. Remove the Tuner Unit PC Board. (Refer to item 1-2-1.)
3. Remove eight screws (1), then remove the rear panel (2).
4. Remove two claws, then remove the rear panel (2).
5. Remove the tape (3).
6. Remove two screws (4), then remove the fan (5).
7. Remove two screws (6), then remove the coaxial cable (7).

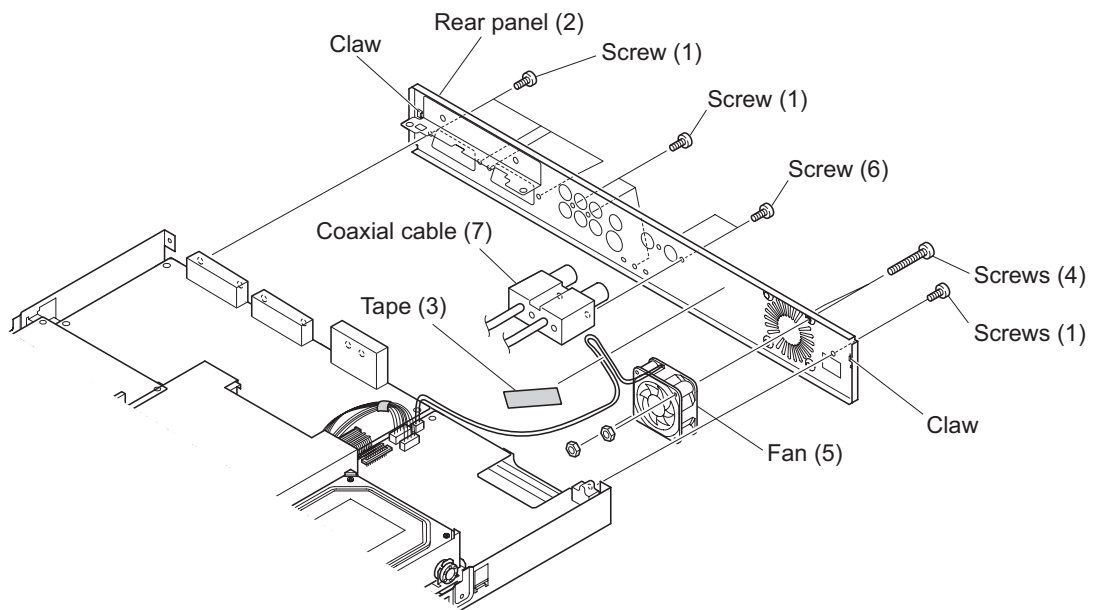


Fig. 2-1-5

1-1-6. Fan

1. Remove the top cover. (Refer to item 1-1-1.)
2. Disconnect the connector (1).
3. Remove the tape (2).
4. Remove two screws (3), then remove the fan (4).

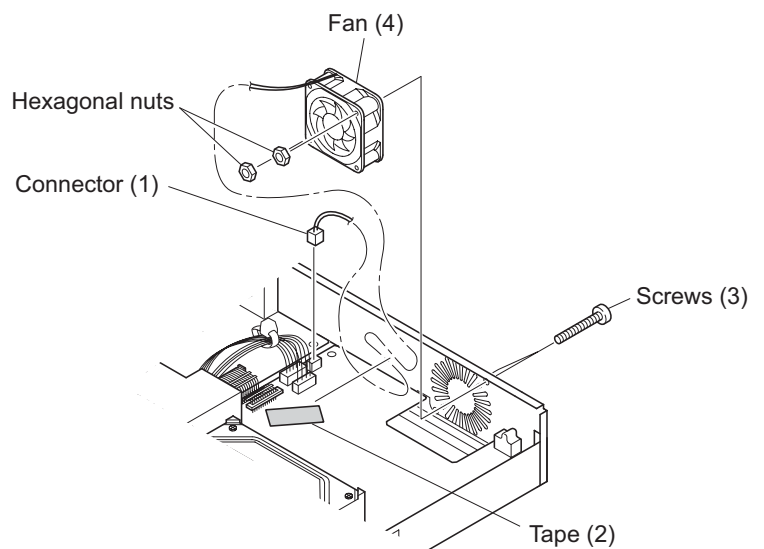


Fig. 2-1-6

1-2. PC Board Replacement

1-2-1. Digital Tuner Module

1. Remove the top cover. (Refer to item 1-1-1.)
2. Remove two tapes (1).
3. Disconnect four connectors (2).
4. Disconnect the two coaxial cables (3).
5. Remove three screws (4), then remove the Digital Tuner Module (5).

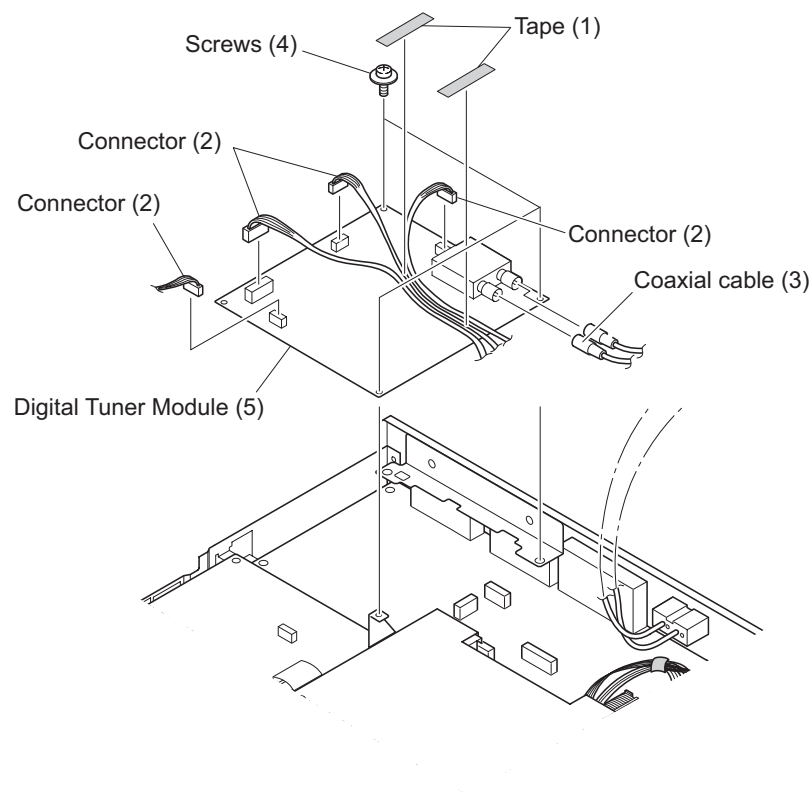


Fig. 2-1-7

1-2-2. Digital PC Board

1. Remove the top cover. (Refer to item 1-1-1.)
2. Remove the Digital Tuner Module. (Refer to item 1-2-1.)
3. Remove the tape (1).
4. Disconnect the two flexible cables (2).
5. Disconnect the connector (3).
6. Remove three screws (4), then remove the Digital PC board (5).

Note:

- Be careful when removing the Digital PC board as it is connected to the Mother PC board (6) with the three connectors (7).

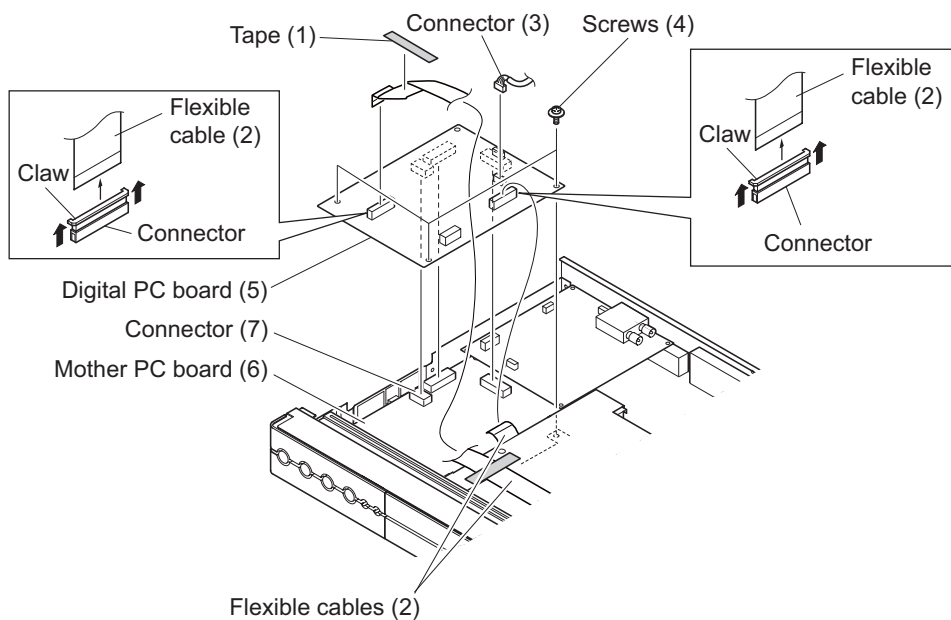


Fig. 2-1-8

1-2-3. Mother PC Board

1. Remove the top cover. (Refer to item 1-1-1.)
2. Remove the front panel. (Refer to item 1-1-3.)
3. Remove the rear panel. (Refer to item 1-1-5.)
4. Remove the Digital Tuner Module. (Refer to item 1-2-1.)
5. Remove the Digital PC board. (Refer to item 1-2-2.)
6. Disconnect the connector (1).
7. Remove six screws (2).
8. Draw the Mother PC board (3) backward (direction of arrow) to remove it.

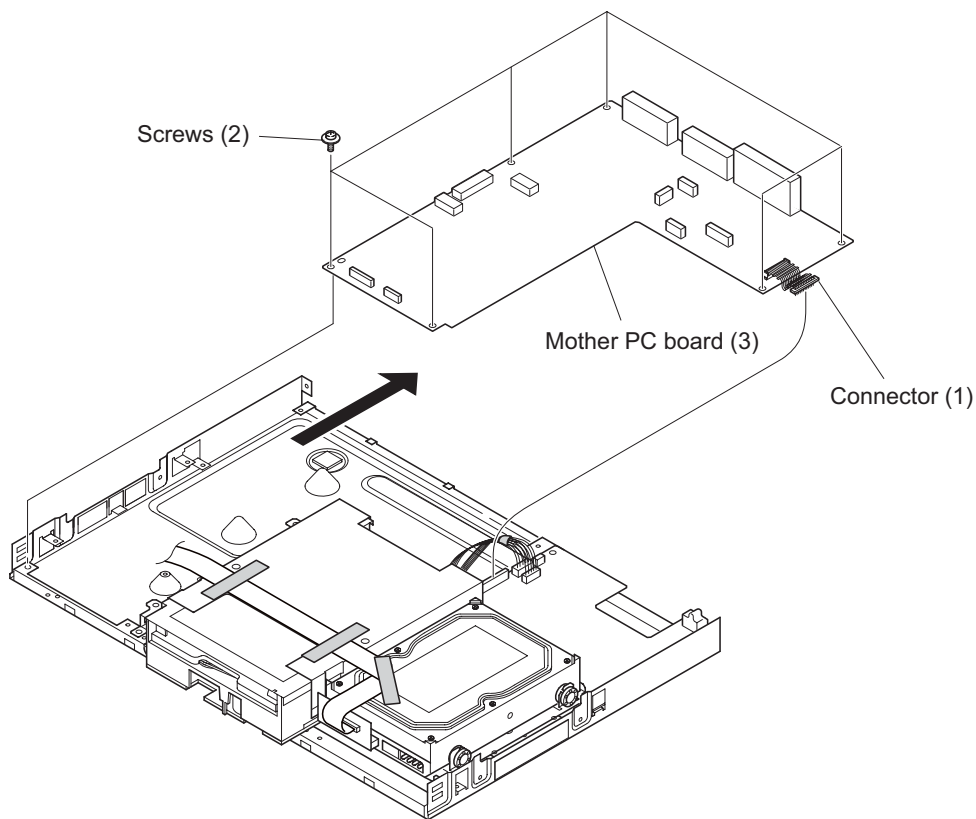


Fig. 2-1-9

1-2-4. Power PC Board

Cautions :

- Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.
1. Remove the top cover. (Refer to item 1-1-1.)
 2. Remove the HDD. (Refer to item 1-1-2.)
 3. Remove the front panel. (Refer to item 1-1-3.)
 4. Remove the Digital Tuner Module. (Refer to item 1-2-1.)
 5. Remove the RAM drive. (Refer to item 1-1-4.)
 6. Disconnect the connector (1) and four connectors (2).
 7. Remove the screw (4), then remove the rear panel (3).
 8. Remove four screws (5), then remove the Power PC board (6).

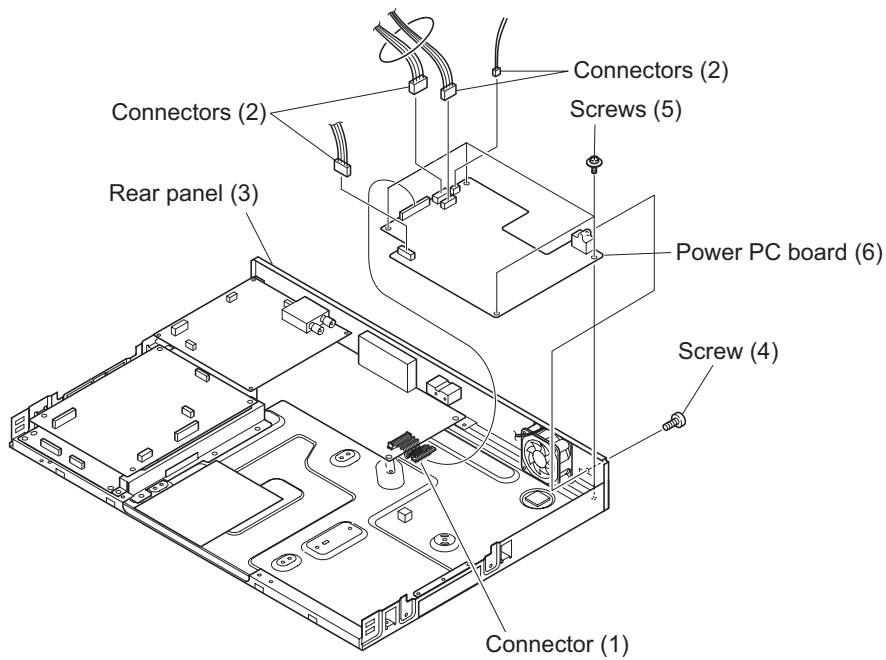


Fig. 2-1-10

1-2-5. Front (R), Front (L), and Front (Jack) PC Boards

1. Remove the top cover. (Refer to item 1-1-1.)
2. Remove the HDD. (Refer to item 1-1-2.)
3. Remove the front panel. (Refer to item 1-1-3.)
4. Remove four screws (1), then remove the stay (2).
5. Remove three screws (3), then remove the Front (R) PC board (4).
6. Remove two screws (5), then remove the Front (Jack) PC board (6).
7. Remove four screws (7), then remove the Front (L) PC board (8).

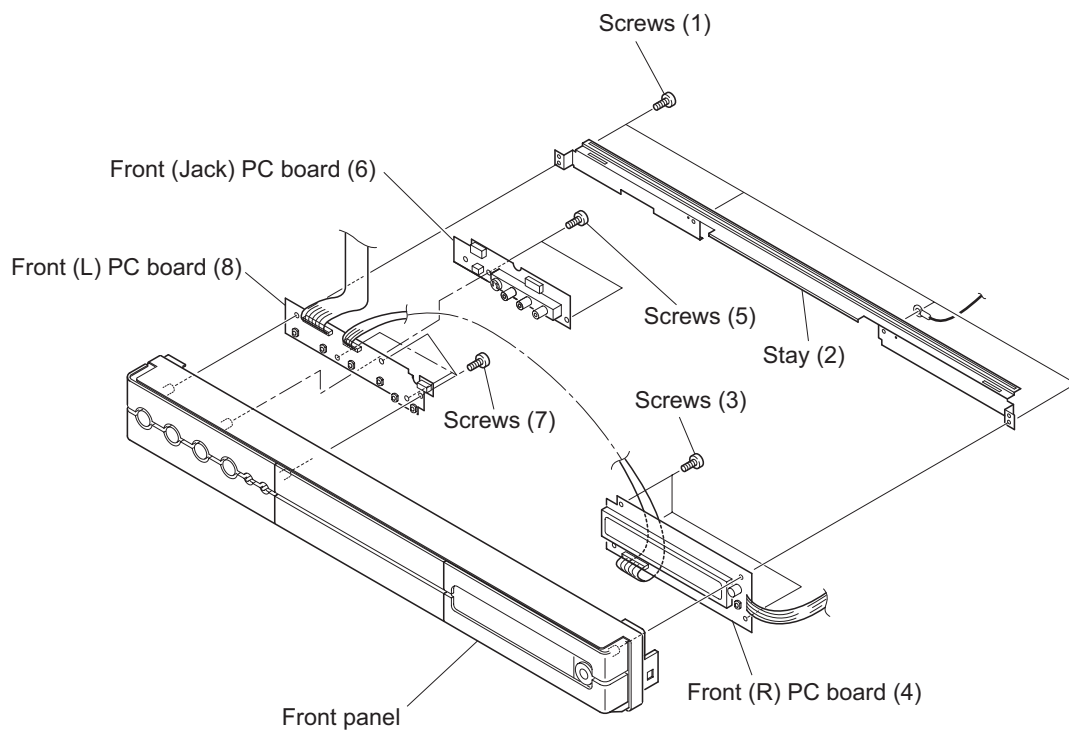


Fig. 2-1-11

2. WIRING CONNECTION DIAGRAM

After the servicing is complete, return the wiring to its original state by using the below diagram as a reference.

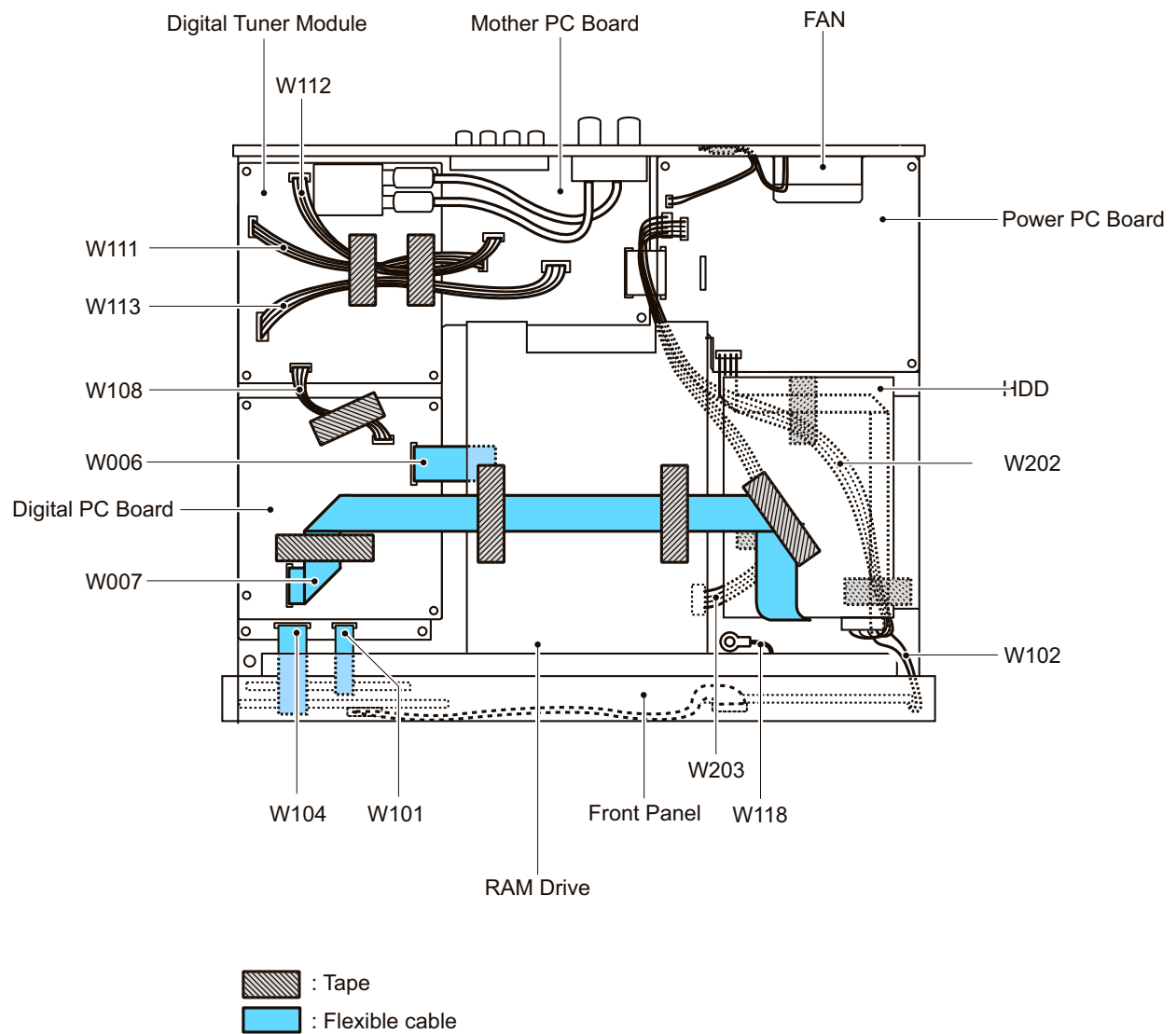


Fig. 2-2-1

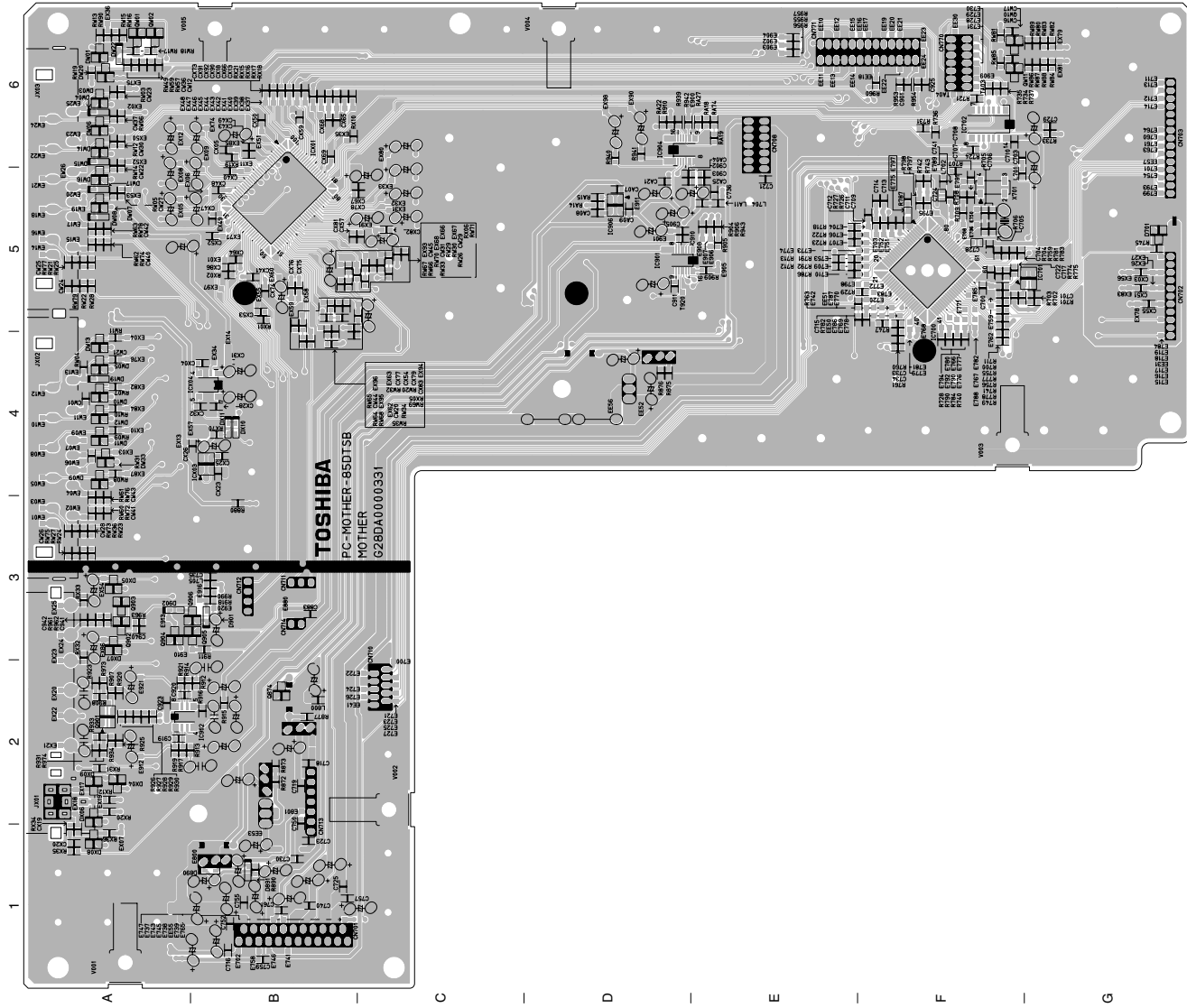


Fig. 3-5-10 EU05 Mother PC Board (Bottom side)

SECTION 4 PARTS LIST

SAFETY PRECAUTION

The parts identified by ! (\triangle) mark are critical for safety. Replace only with part number specified.

The mounting position of replacement is to be identical with originals.

The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

NOTICE

The part number must be used when ordering parts in order to assist in processing, be sure to include the model number and description.

ABBREVIATIONS

- Integrated Circuit (IC)
- Capacitor (Cap)
 - Capacitance Tolerance (for Nominal Capacitance more than 10pF)

Table 4-2-1

Symbol	B	C	D	F	G	J	K	M	N
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20	± 30

Symbol	P	Q	T	U	V	W	X	Y	Z
Tolerance %	+ 100 0	+ 30 - 10	+ 50 - 10	+ 75 - 10	+ 20 - 10	+ 100 - 10	+ 40 - 20	+ 150 - 10	+ 80 - 20

Ex. 10 μ F J = 10 μ F $\pm 5\%$

- Capacitance Tolerance (for Nominal Capacitance 10pF or less)

Table 4-2-2

Symbol	B	C	D	F	G
Tolerance pF	± 0.1	± 0.25	± 0.5	± 1	± 2

Ex. 10pF G = 10pF ± 2 pF

- Resistor (Res)
 - Resistance tolerance

Table 4-3-1

Symbol	B	C	D	F	G	J	K	M
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20

Ex. 470 Ω J = 470 Ω $\pm 5\%$

1. EXPLODED VIEWS

1-1. Packing Assembly

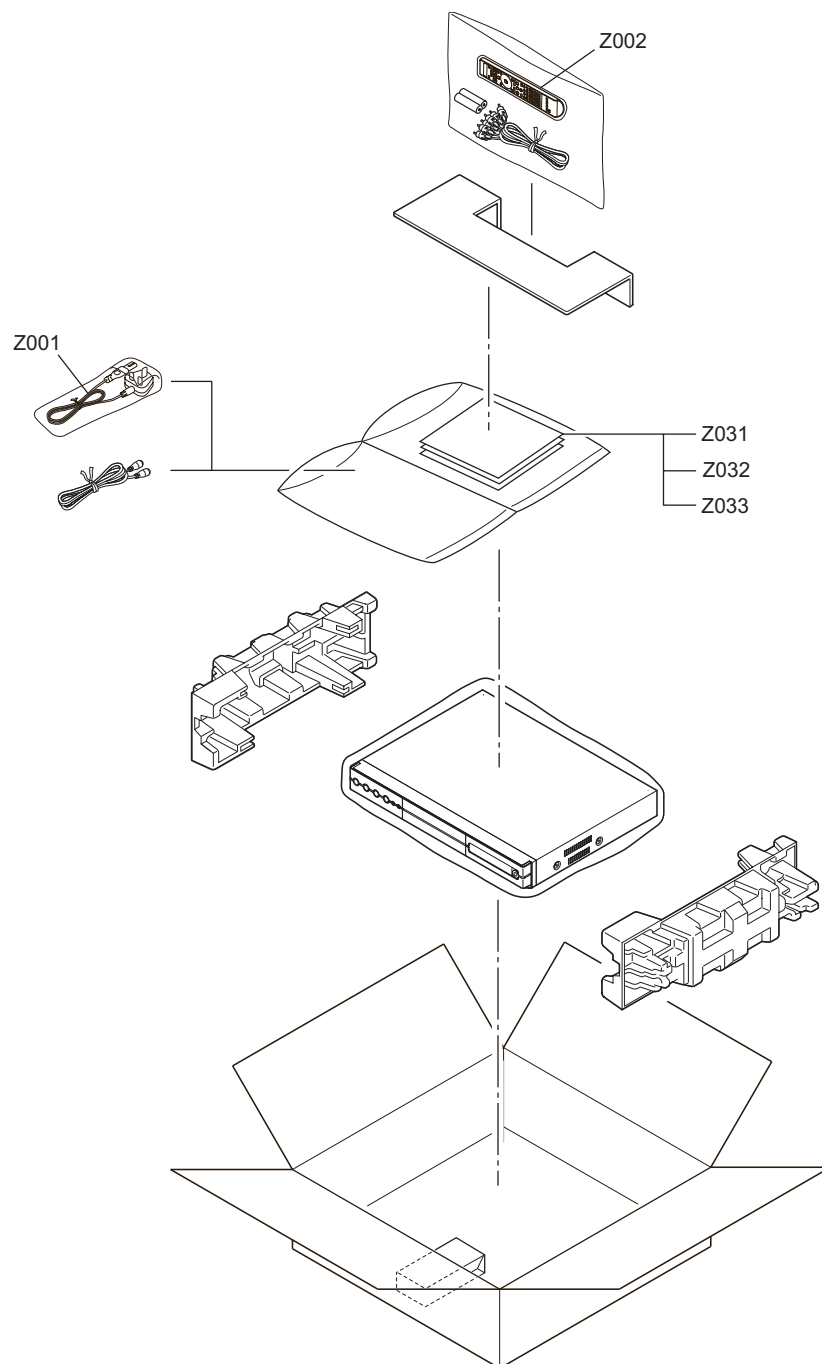


Fig. 4-4-1

1-2. Chassis Assembly

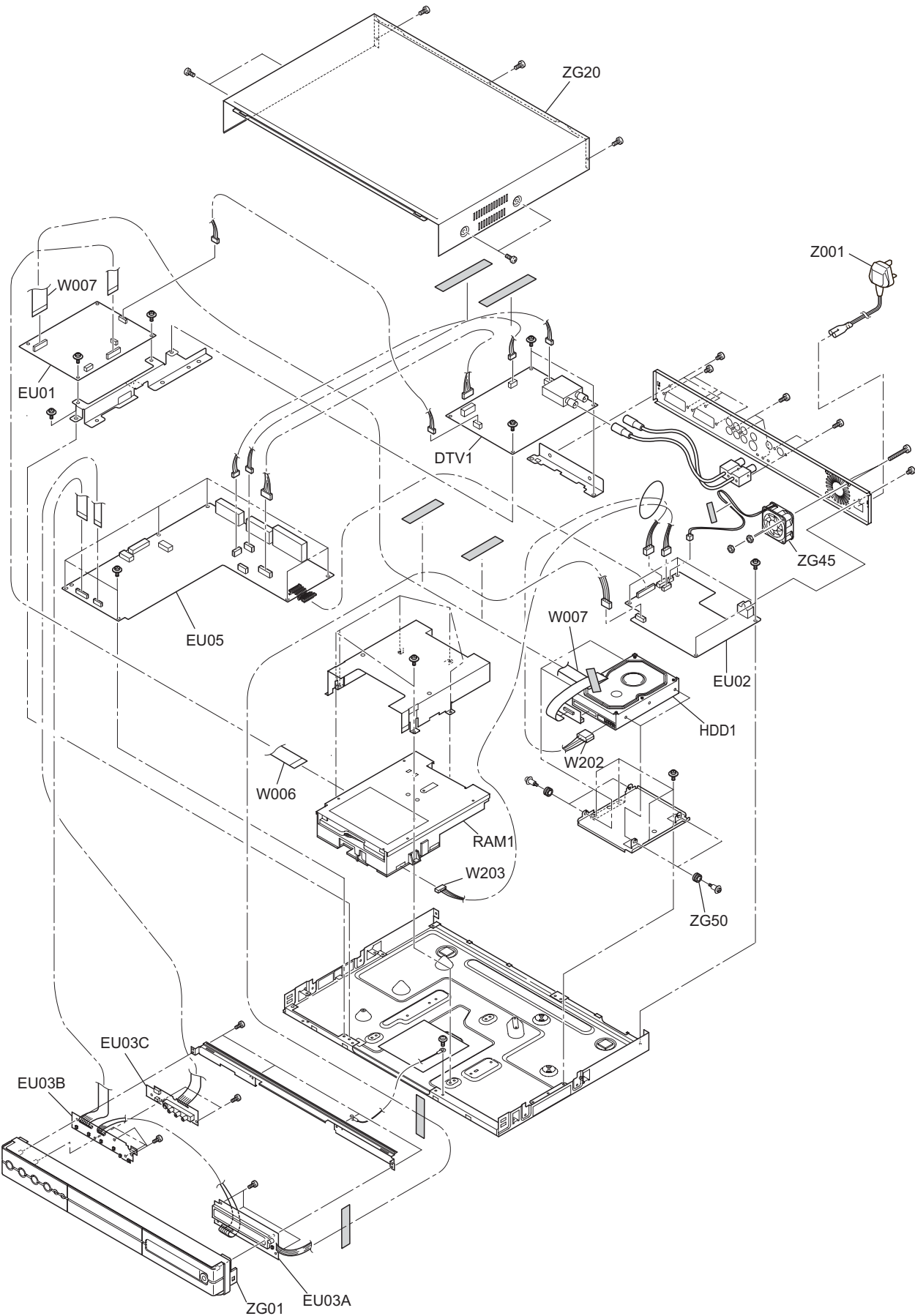



Fig. 4-4-2

2. PARTS LIST

Location No.	Part No.	Description	
- MECHANICAL PARTS -			
⚠ RAM1	P000469980	DVD-RAM DRIVE	DAV-WR532-TM
HDD1	P000463120	HDD 160GB	6L160P0
HDD1	P000463100	HDD 160GB	ST3160022ACE SAFFIX-UP
W006	P000470240	CABLE	FFC-40P-L80 DIG-RAM
W007	P000470230	CABLE	FFC-40P-L440 DIG-HDD
W202	P000470160	CABLE	WIRE-4P-L370 POW-HDD
W203	P000470170	CABLE	WIRE-6P-L320 POW-RAM
⚠ Z001	79088034	CORD POWER	UK
Z002	P000470190	Remote Control Unit	SE-R0222
⚠ Z031	P000470200	OWNERS MANUAL,ST	ENGLISH
⚠ Z032	P000470210	OWNERS MANUAL,OP	ENGLISH
⚠ Z033	P000470220	OWNERS MANUAL,QUICK	ENGLISH
ZG01	P000470180	PANEL ASSY FRONT,SILVER	
ZG20	P000463180	COVER TOP,BLACK	
ZG45	P000401260	Fan,DC	5025LL12SND2
ZG45	P000470090	Fan,DC	DSB0512LD-P86Y
ZG50	P000438100	DAMPER	

Location No.	Part No.	Description	
- ELECTRICAL PARTS -			
EU01	P000470100	PC BOARD ASSY	DIGITAL
IC302	P000416750	IC	BA25BC0FP-E2
IC303	P000440410	IC	MM1573DNRE
IC304	P000391240	IC	NJM2125F (TE1)
IC306	P000446300	IC	SN74AHC1G08HDCKR
IC307	P000470050	IC	BD46252G-TR
IC317	P000377920	IC	SN74LV244APWR
Q301	P000446230	Transistor	2SA1162-Y
Q302	P000446230	Transistor	2SA1162-Y
Q303	P000446230	Transistor	2SA1162-Y
Q304	P000446230	Transistor	2SA1162-Y
Q305	P000446230	Transistor	2SA1162-Y
Q306	P000446220	Transistor	2SC2712-Y
Q307	P000446220	Transistor	2SC2712-Y
Q308	P000446230	Transistor	2SA1162-Y
Q309	P000446230	Transistor	2SA1162-Y
X302	79089168	OSCILLATOR CRYSTAL	NX8045GB-24.576M
X304	P000442310	OSCILLATOR CRYSTAL	NX8045GB-EXS00A-02101-27.0M
 EU02	P000470150	POWER UNIT	MPN5114
EU03A	P000470110	PC BOARD ASSY	FRONT-R
D118	P000446270	Diode, Chip	1SS226 TE85L.F
IC101	P000416700	IC	PT6315
S100	P000469990	TACT SW	SKRGABD010
DS101	P000470010	FIP DISPLAY	VFD20-0915N
MT101	P000470070	Module, IR	GP1UM271XK0F
EU03B	P000470120	PC BOARD ASSY	FRONT-L
D110	P000446270	Diode	1SS226 TE85L.F
D111	P000446270	Diode	1SS226 TE85L.F
D112	P000470030	Diode, LED	EL-3105-1SDRT/S530-A3, RED
D113	P000470020	Diode, LED	EL-3105-1GVT/S530-E3, GREEN
D115	P000446280	Diode, LED	EL-3105-1UBT/S1142, BLUE
D116	P000470020	Diode, LED	EL-3105-1GVT/S530-E3, GREEN
D181	79060033	Diode, LED	SPR-325MVWT31, DUAL
Q111	P000446200	Transistor	RN2401
Q112	P000446200	Transistor	RN2401
Q115	P000446250	Transistor	RN1401
Q116	P000446250	Transistor	RN1401
Q181	P000446210	Transistor	RN2402
Q182	P000446210	Transistor	RN2402
S101	P000469990	TACT SW	SKRGABD010
S102	P000469990	TACT SW	SKRGABD010
S103	P000469990	TACT SW	SKRGABD010
S104	P000469990	TACT SW	SKRGABD010
S105	P000469990	TACT SW	SKRGABD010
S108	P000469990	TACT SW	SKRGABD010
S117	P000377940	MICRO SW	MPU11110MLB0
EU03C	P000470130	PC BOARD ASSY	FRONT-J
PJ111	P000470000	JACK	LAP5000-1301F
EU05	P000470140	PC BOARD ASSY	MOTHER
D701	P000446270	Diode	1SS226 TE85L.F
D901	79060019	Diode	1SS355
D902	79060019	Diode	1SS355
DW01	P000446270	Diode	1SS226 TE85L.F
DX10	79060019	Diode	1SS355
DX11	79060019	Diode	1SS355

Location No.	Part No.	Description
Q901	P000446240	Transistor HN1C03F-B
Q902	P000446220	Transistor 2SC2712-Y
Q903	P000446230	Transistor 2SA1162-Y
Q904	P000446210	Transistor RN2402
Q905	P000446260	Transistor RN1402
Q906	P000446210	Transistor RN2402
QW01	P000446220	Transistor 2SC2712-Y
QW02	P000446260	Transistor RN1402
QW10	P000446230	Transistor 2SA1162-Y
QW11	P000446230	Transistor 2SA1162-Y
IC701	P000391180	IC PST3222
IC702	P000470040	IC CD74HCT125M96
IC901	P000440480	IC PCM1755DBQR
IC902	P000440510	IC RC4580IPWR
IC906	79040397	IC MM1575ANRE
ICX01	P000470060	IC LV7107M-MPB-E
ICX03	P000405080	IC XC6209B502MR
ICX04	P000395150	IC MM1565AFBE
JX01	P000435170	JACK LAP5100-1001F
JX02	P000434970	RGB CONNECTOR MRC-021V-29
JX03	P000434970	RGB CONNECTOR MRC-021V-29
X700	P000391040	OSCILLATOR CRYSTAL AT-41-12.5M
X701	P000462960	SMD QUARTZ CRYSTAL SP-T2A-F 32.768KHZ
DTV1	P000470080	DIGITAL TUNER UNIT TDM1010

SUPPLEMENT

The upgrading method of DTV software

1. Use Cable & SW :

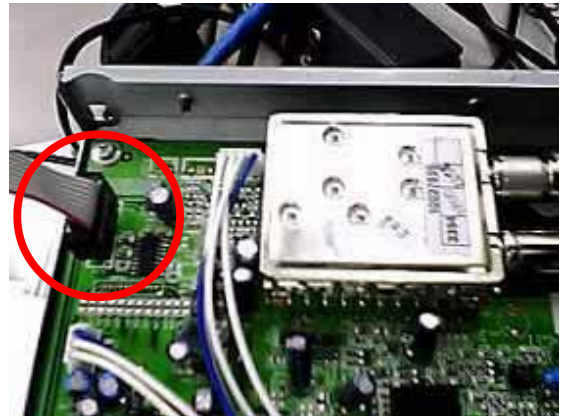
1. DTV Cable



A:Side PC
The cable of DTV is connected to PC (RS232C).



B: Side 85DT-TB
The cable of DTV is inserted in 85 DT-TB.

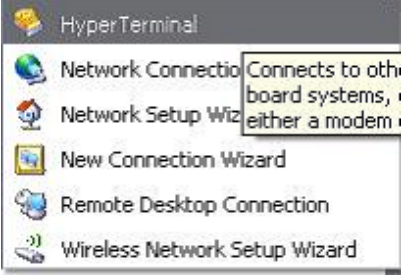





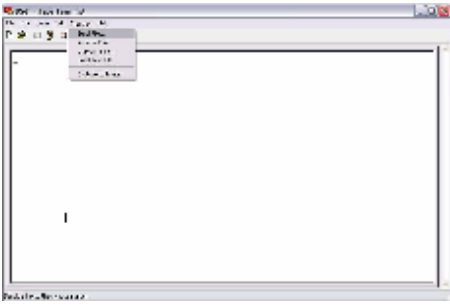
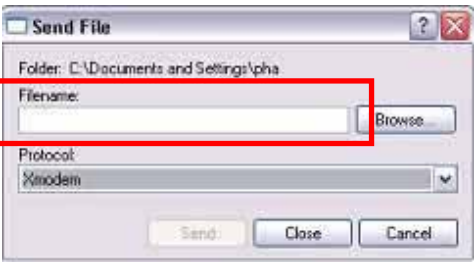
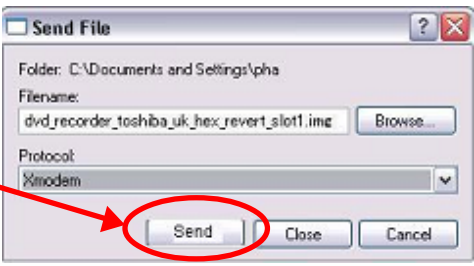

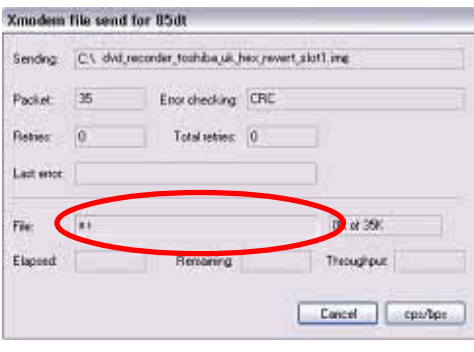
2. DTV FW

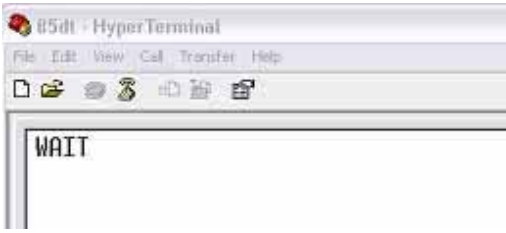

- dvd_recorder_toshiba_uk_hex_revert_slot1.img
- dvd_recorder_toshiba_uk_hex_revert_slot2.img (Note1)
- dvd_recorder_toshiba_uk_hex_slot1.img
- dvd_recorder_toshiba_uk_hex_slot2.img

Note1 : When new FW is sent, this file may not exist.

2. Operation : The First Time

<p>2.1</p> <p>A hyper-terminal is started.</p> <p>(Start → All Programs → Accessories → Communications → Hyper Terminal)</p>	
<p>2-2</p> <p>[Connection Description] dialog is displayed.</p> <p>Please input a connection name. (Name Ex.:85DT)</p> <p>And please choose an icon.</p> <p>Press OK.</p>	
<p>2-3</p> <p>[Connect to] dialog is displayed.</p> <p>Please choose the port which the cable has connected.</p> <p>Press OK</p> <p>Ex.) You have to specify COM3, when you connect a cable to COM3.)</p>	
<p>2-4</p> <p>[Com3 Properties] dialog is displayed.</p> <p>Please set up as follows.</p> <p>And Press OK</p> <p>Bit per second : 115200 Data bits : 8 Parity : None Stop bit : 1 Flow Control : None</p>	

<p>2-5</p> <p>Hyper Terminal is Displayed</p> <p>Please choose Transfer → Send File...</p>	
<p>2-6</p> <p>[Send file] dialog is displayed.</p> <p>Please set a protocol as Xmodem.</p> <p>Transmission of FW file should go as follows.</p> <ol style="list-style-type: none"> 1 dvd_recorder_toshiba_uk_hex_revert_slot1.img 2 dvd_recorder_toshiba_uk_hex_revert_slot2.img 3 dvd_recorder_toshiba_uk_hex_slot1.img 4 dvd_recorder_toshiba_uk_hex_slot2.img 	
<p>2-7</p> <p>Press Send</p>	
<p>2-8</p> <p>[Xmodem file Send for 85DT] dialog is displayed.</p> <p>The power supply of RD is turned on.</p>	
<p>2-9</p> <p>Communication starts.</p> <p>Please wait to complete transmission.</p> <p>(Please wait for progress to become 100%.)</p>	

<p>2-10</p> <p>Please wait to write in FW of DTV.</p>	
<p>2-11</p> <p>If O.K. is displayed, upgrade will be ended. The power supply of RD is turned off.</p> <p>Renewal of file(A) was completed now. [A:dvd_recorder_toshiba_uk_hex_revert_slot1.img]</p>	
<p>2-12</p> <p>When you update another file, please repeat from 2-5. (Please use a hyper-terminal as it is.)</p>	
<p>2-13</p> <p>This setup is saved at the time of a hyper-terminal end, and shortcut is created. Next, it can perform from 2-5.</p>	

3. Update Check

Version information has two kinds of display methods.

■ Case 1: DTV MENU

The version of DTV FW can be confirmed by the next operation.

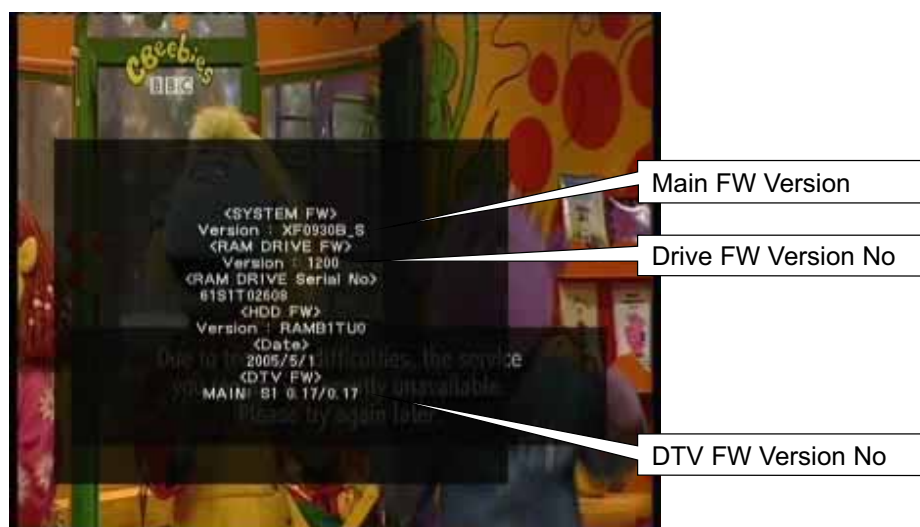
1. RD Power On (Menu is Displayed)
2. Press Menu Key (Close Menu)
3. Press DTV Menu Key and choose Feature Menu.
4. [Software Upgrade]MENU is chosen press the OK/Enter key.
5. ([Software Upgrade] dialog is displayed.)
6. Press Right_key or Left Key
(SLOT1 and SLOT2 are displayed by turns.)



■ Case 2 : Special Command

The version of Main FW can be confirmed by the next operation.

1. TV Viewing
2. Press ZOOM_Key (ZOOM screen indication)
3. Press 1Key and Press 9Key and Press 5Key
4. Press ZOOM_Key (ZOOM screen indication)



SPECIFICATIONS

Power requirement during operation	37W
Power requirement at standby	2.0W ("Eco. mode": "On") 5.0W ("Eco. mode": "Off")
Power supply	230V-240V AC, 50/60 Hz
Mass	4.7kg
External dimension	Width 430 x Height 58 x Depth 333mm
Tuner	System1 : Frequency synthesizer Channel coverage : DVB-T PAL I UHF : 21-69
Aerial input/output terminal	UHF : 75Ω, IEC Connector
Signal system	Standard PAL Colour TV system
Laser	Semiconductor laser, Wavelength : 650nm/780nm
Format	DVD-VR format, DVD-Video format
Image recording system	MPEG2
Sound recording system	Dolby Digital M1, M2, Linear PCM
VIDEO input	1.0Vp-p (75Ω), Sync signal negative, Pin jack x 1 system, 1 in front SCART socket x 2 at rear
VIDEO output	1.0Vp-p (75Ω), Sync signal negative, Pin jack x 1 system, 1 at rear SCART socket x 2 at rear
S-VIDEO input	(Y) 1.0Vp-p (75Ω), Sync signal negative, (C) 0.286Vp-p (75Ω) SCART socket x 1 at rear, 1 in front
S-VIDEO output	(Y) 1.0Vp-p (75Ω), Sync signal negative, (C) 0.286Vp-p (75Ω), 1 at rear Mini DIN4 pin x 1 system SCART socket x 1 at rear
COMPONENT output(Y, Pb, Pr)	Y output (green), 1.0Vp-p (75Ω), Sync signal negative, Pin jack x 1 system Pb, Pr output (blue, red), 0.7Vp-p (75Ω), Pin jack x 1 system each
RGB output	(R) 0.7Vp-p (75Ω), (G) 0.7Vp-p (75Ω), (B) 0.7Vp-p (75Ω) SCART socket x 1 at rear (AV1 only)
AUDIO input	2.0V (rms), 22kΩ or above, pin jack (L, R) x 1 system, 1 in front SCART socket x 2 at rear
AUDIO output	2.0V (rms), 1kΩ or below, pin jack (L, R) x 1 system, 1 at rear SCART socket x 2 at rear
DIGITAL AUDIO OUT coaxial jack	0.5Vp-p (75Ω), pin jack x 1 system
Remote control	Wireless remote control (SE-R0222)
Operating conditions	Temperature: 5°C~35°C, Position: Horizontal
Clock display	24 hour digital display
Clock accuracy	Quartz (monthly deviation: approximately ±30 seconds)
Supplied Accessories	Remote control 1 Batteries (R03) 2 Power cord 1 Coaxial cable 1 Video/Audio cable 1 OWNER'S MANUAL (INSTALLATION GUIDE) 1 OWNER'S MANUAL (OPERATIONS) 1 Quick Reference 1

- This model complies with the specifications above.
- Designs and specifications are subject to change without notice.
- This model may not be compatible with features and/or specifications that may be added in the future.
- The illustration used in OWNER'S MANUAL are for reference purposes only. Because the illustrations used in OWNER'S MANUAL are simplified for easy recognition, they may vary slightly from the unit's actual screen displays or figures.

TOSHIBA CORPORATION

1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN

TOSHIBA

FILE NO. 810-200646GR

SERVICE MANUAL



HDD/DVD VIDEO RECORDER ***RD-85DTSB***



The above models are classified as green products (*1), as indicated by the underlined serial numbers. This Service Manual describes replacement parts for the green products. When repairing these green product(s), use the part(s) described in this manual and lead-free solder (*2).

For (*1) and (*2), see the next page.

Apr., 2006 GREEN

SECTION 3

SERVICING DIAGRAMS

1. CIRCUIT SYMBOLS AND SUPPLEMENTARY EXPLANATION

1-1. Precautions for Part Replacement

- In the schematic diagram, parts marked \triangle (ex. \triangle F801) are critical part to meet the safety regulations, so always use the parts bearing specified part codes (SN) when replacing them.
- Using the parts other than those specified shall violate the regulations, and may cause troubles such as operation failures, fire etc.

1-2. Solid Resistor Indication

Unit	None Ω K $k\Omega$ M $M\Omega$
Tolerance	None $\pm 5\%$ B $\pm 0.1\%$ C $\pm 0.25\%$ D $\pm 0.5\%$ F $\pm 1\%$ G $\pm 2\%$ K $\pm 10\%$ M $\pm 20\%$
Rated Wattage	(1) Chip Parts None 1/16W (2) Other Parts None 1/6W Other than above, described in the Circuit Diagram.
Type	None Carbon film S Solid R Oxide metal film M Metal film W Cement FR Fusible

Eg. 1

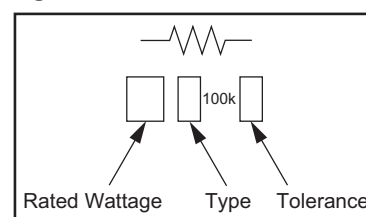


Fig. 3-1-1

1-3. Capacitance Indication

Symbol	$\begin{array}{l} \text{---} \text{+} \text{---} \text{..... Electrolytic, Special electrolytic} \\ \text{---} \text{NP} \text{---} \text{..... Non polarity electrolytic} \\ \text{---} \text{---} \text{..... Ceramic, plastic} \\ \text{---} \text{M} \text{---} \text{..... Film} \\ \text{---} \text{---} \text{---} \text{..... Trimmer} \end{array}$
Unit	None F μ μF p pF
Rated voltage	None 50V For other than 50V and electrolytic capacitors, described in the Circuit Diagram.
Tolerance	(1) Ceramic, plastic, and film capacitors of which capacitance are more than 10 pF. None $\pm 5\%$ or more B $\pm 0.1\%$ C $\pm 0.25\%$ D $\pm 0.5\%$ F $\pm 1\%$ G $\pm 2\%$ (2) Ceramic, plastic, and film capacitors of which capacitance are 10 pF or less. None more than ± 5 pF B ± 0.1 pF C ± 0.25 pF (3) Electrolytic, Trimmer Tolerance is not described.
Temperature characteristic (Ceramic capacitor)	None SL For others, temperature characteristics are described. (For capacitors of 0.01 μF and no indications are described as F.)
Static electricity capacity (Ceramic capacitor)	Sometimes described with abbreviated letters as shown in Eg. 3.

Eg. 2

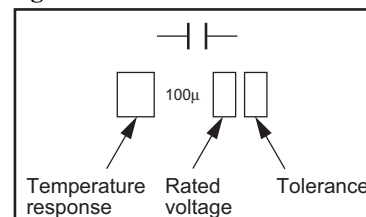


Fig. 3-1-2

Eg. 3

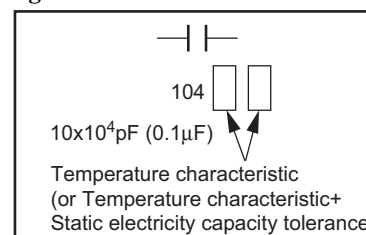


Fig. 3-1-3

1-4. Inductor Indication

Unit	None H μ μH m mH
Tolerance	None ±5% B ±0.1% C ±0.25% D ±0.5% F ±1% G ±2% K ±10% M ±20%

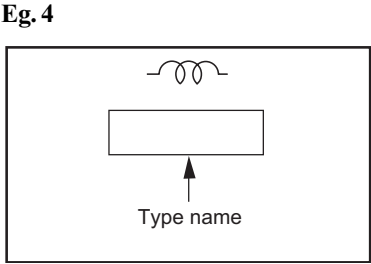


Fig. 3-1-4

1-5. Waveform and Voltage Measurement

- The waveforms for CD/DVD and RF shown in the circuit diagrams are obtained when a test disc is played back.
- All voltage values except the waveforms are expressed in DC and measured by a digital voltmeter.

1-6. Others

- The parts indicated with "NC" or "KETU" etc. are not used in the circuits of this model.

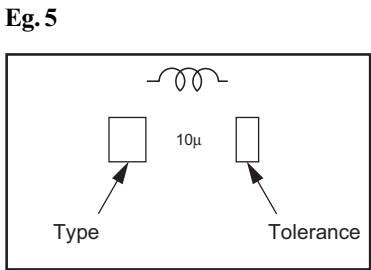
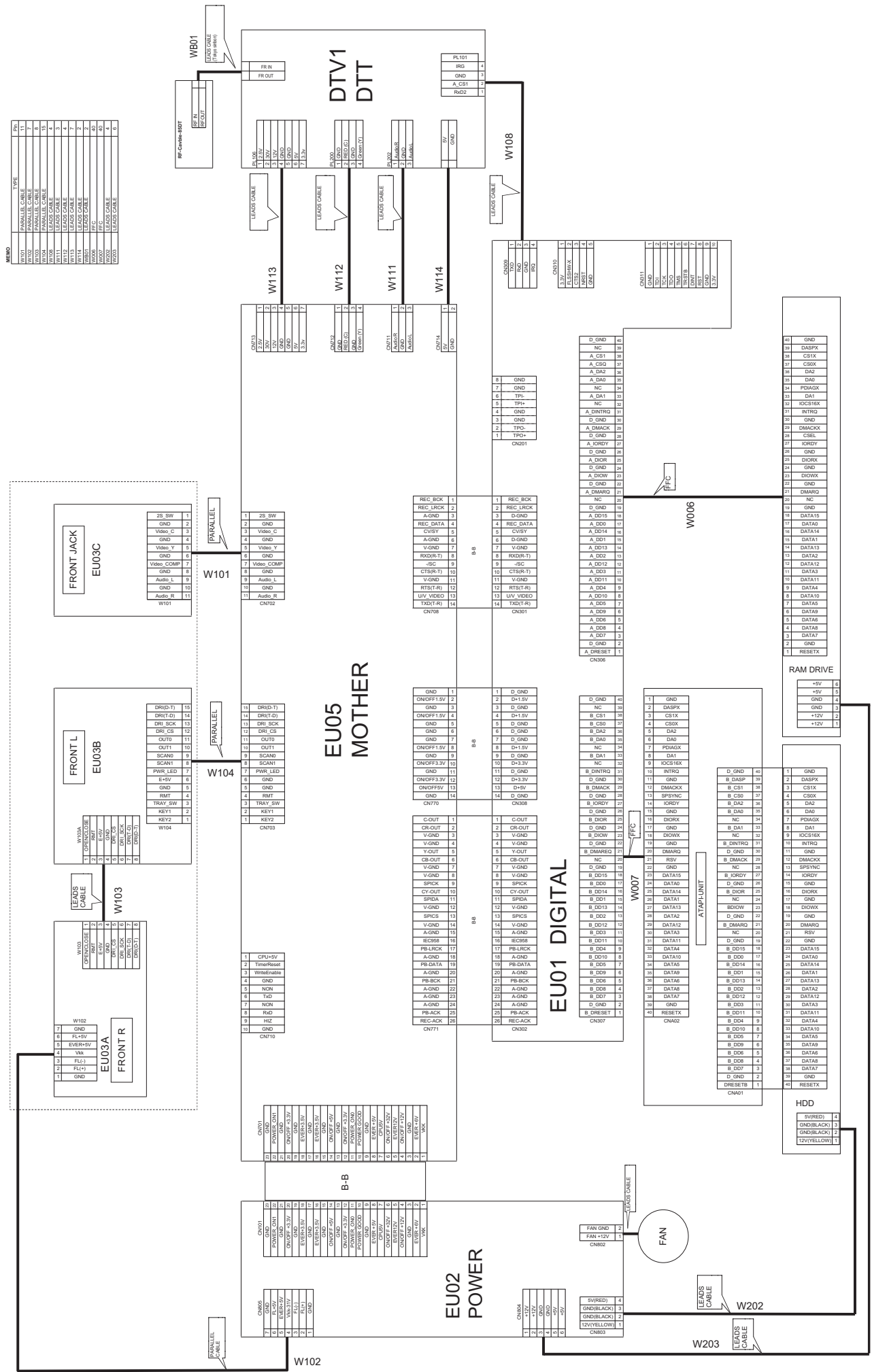


Fig. 3-1-5

2. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM



3. BLOCK DIAGRAMS

3-1. Overall Block Diagram

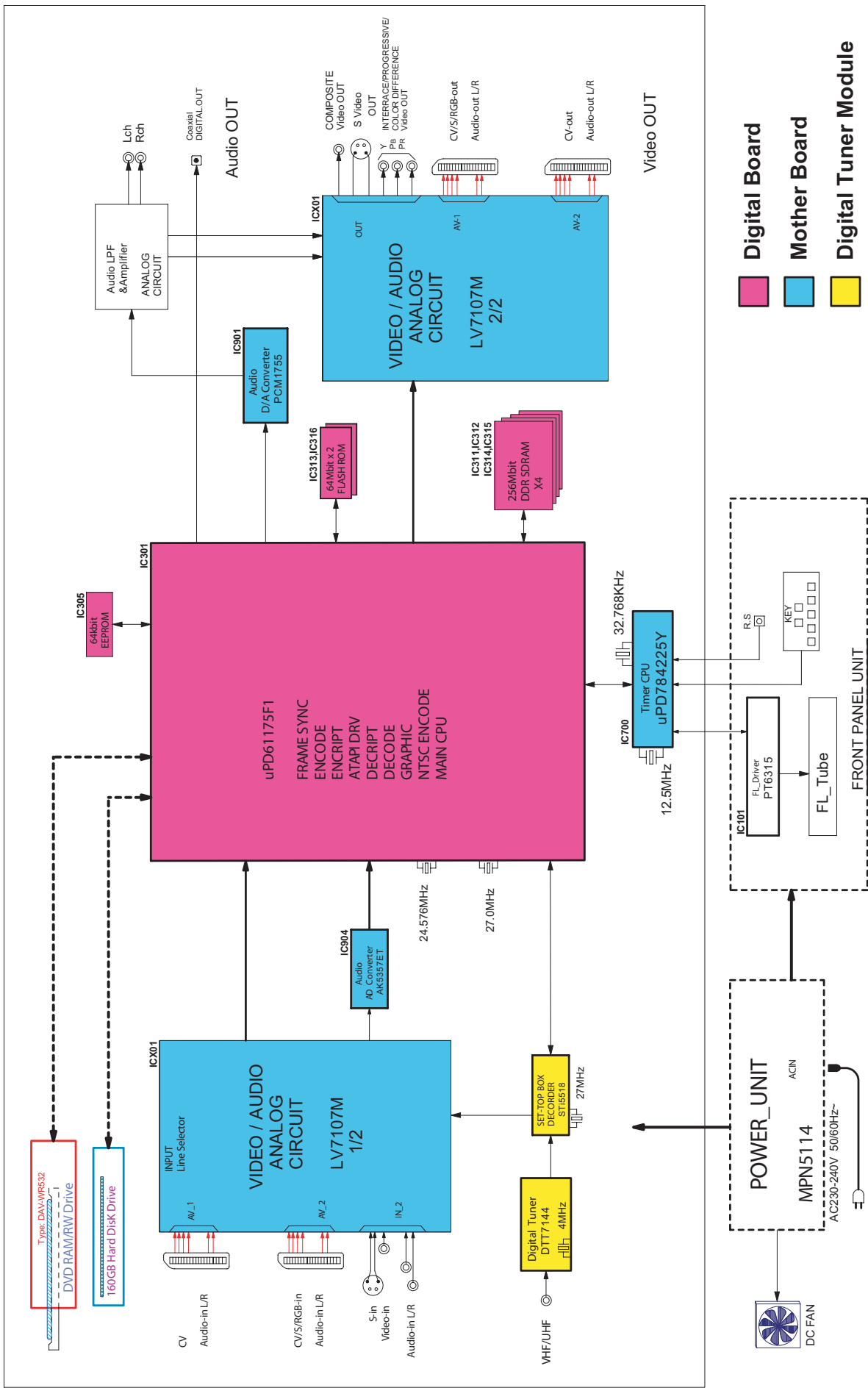
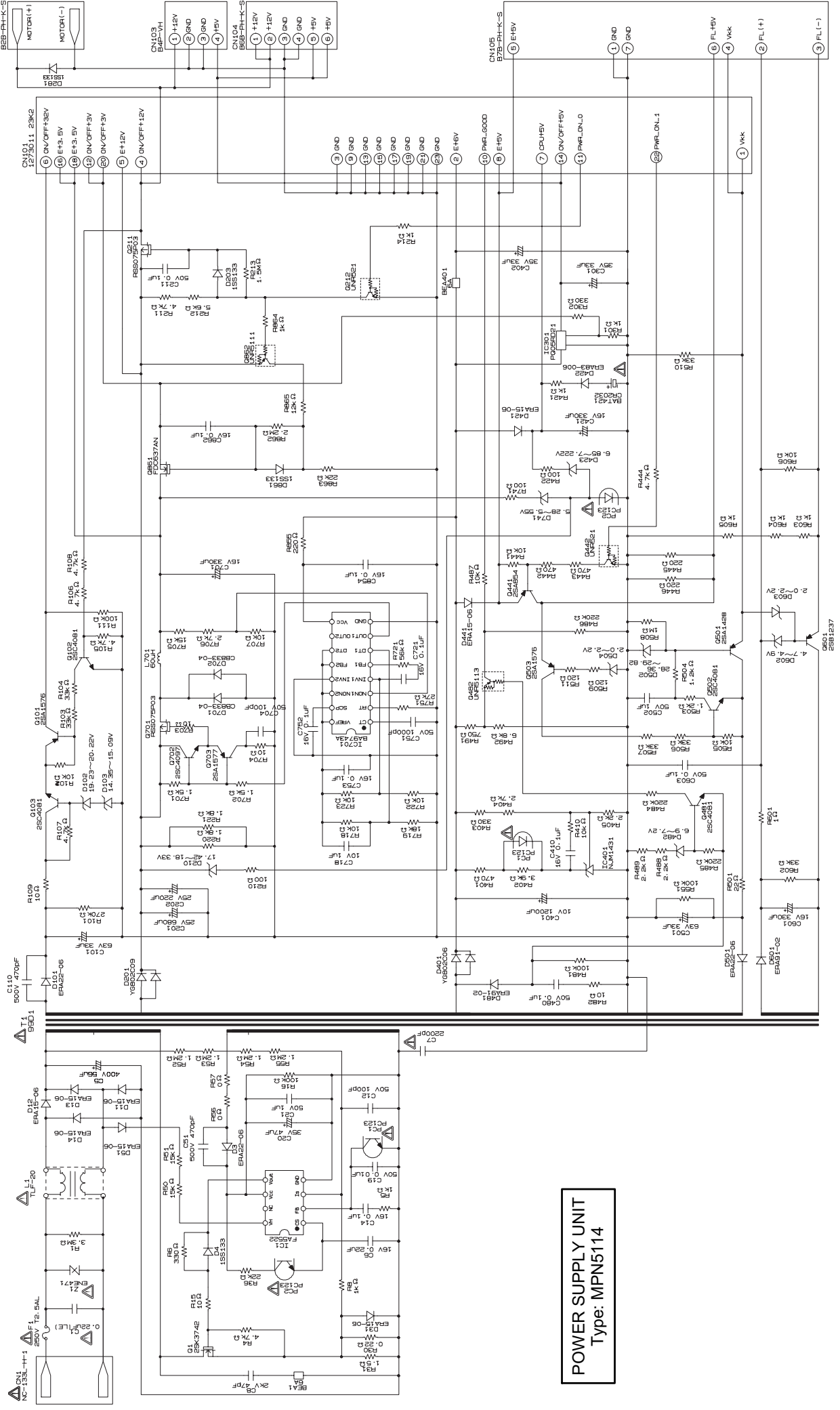


Fig. 3-3-1

4. CIRCUIT DIAGRAMS

4-1. Power Supply Circuit Diagram



4-2. Front Circuit Diagram

4-2-1. Front Jack Circuit Diagram

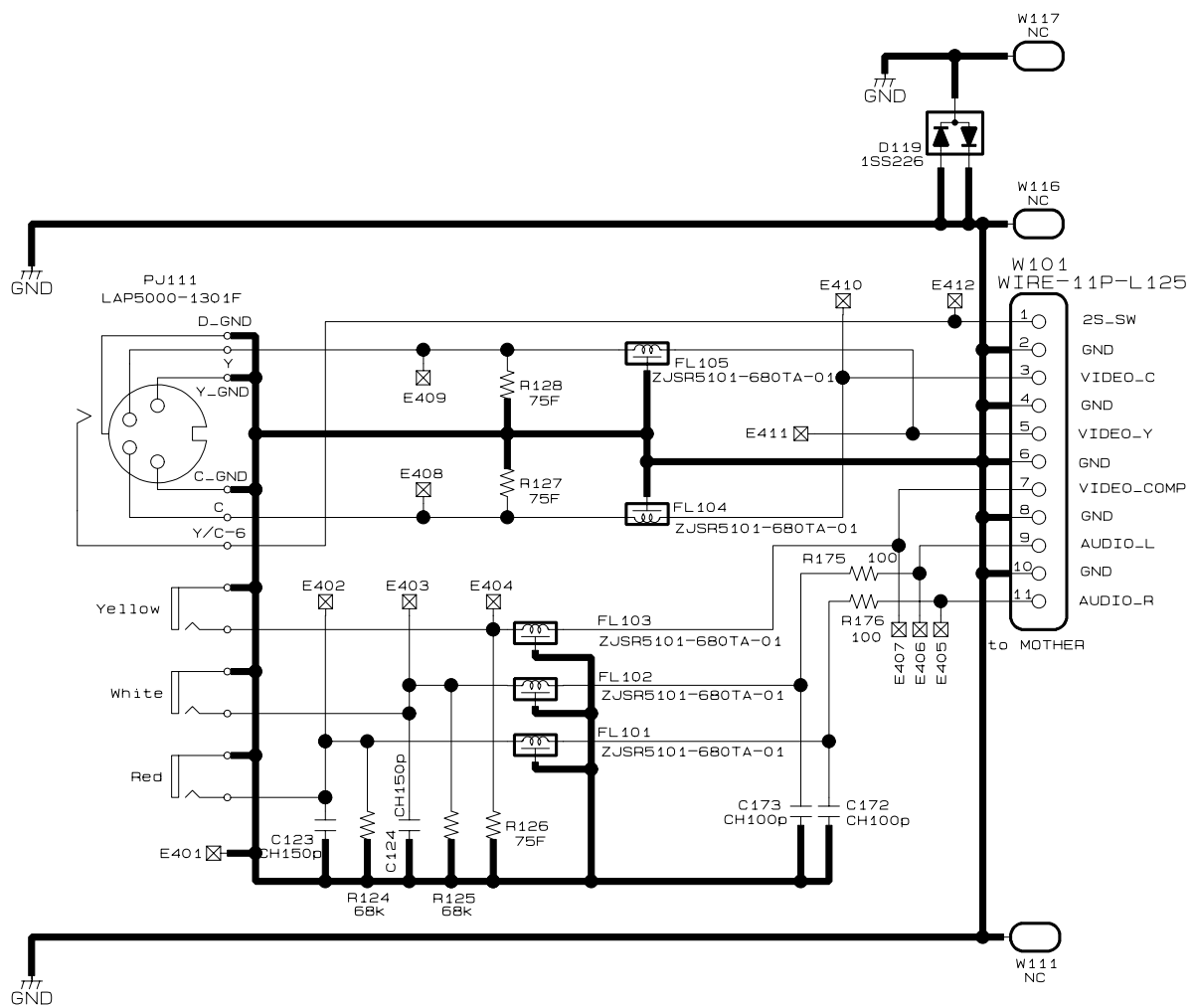


Fig. 3-4-2

4-2-2. Front Circuit Diagram (R)

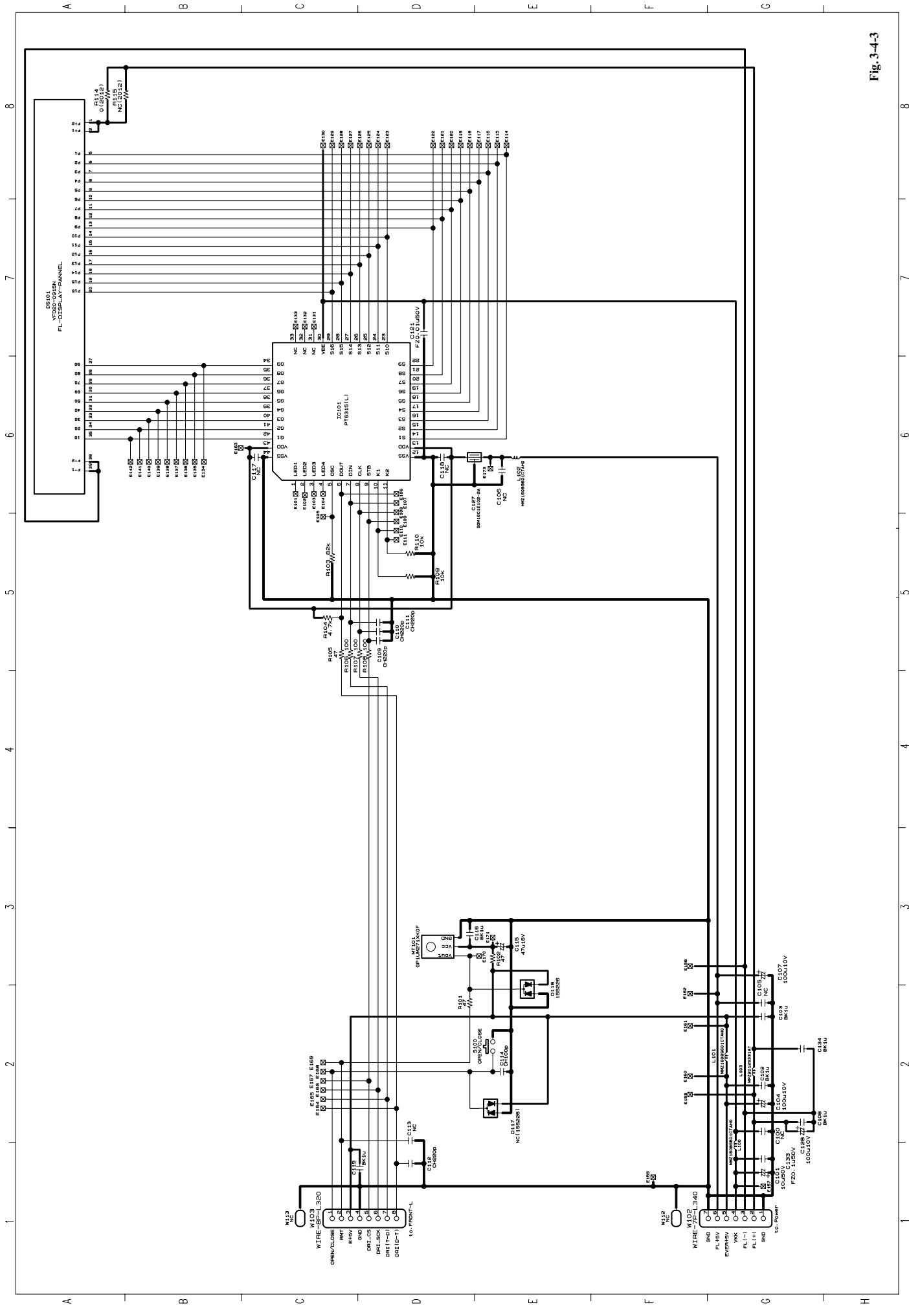


Fig.3-4-3

4-2-3. Front Circuit Diagram (L)

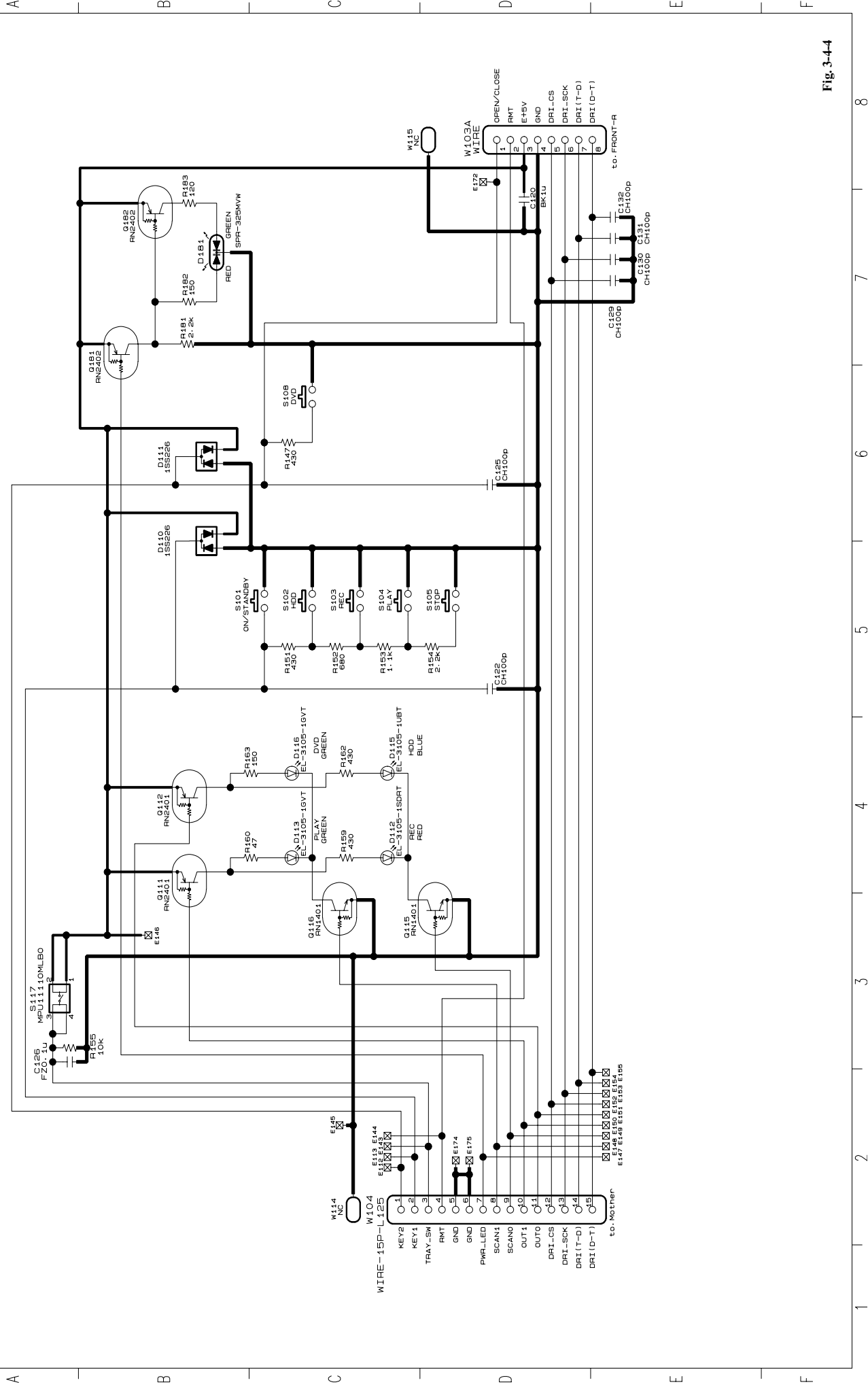
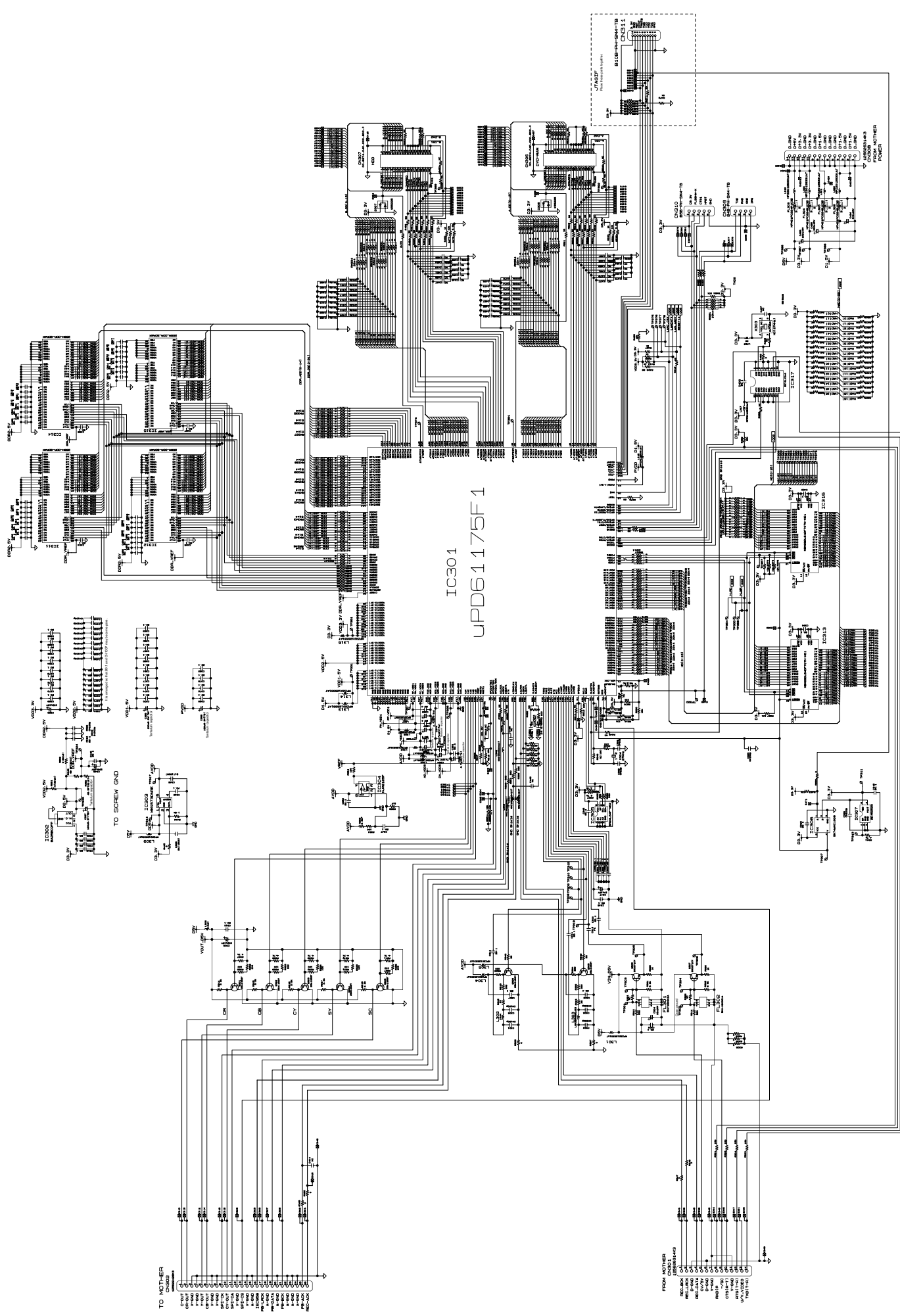


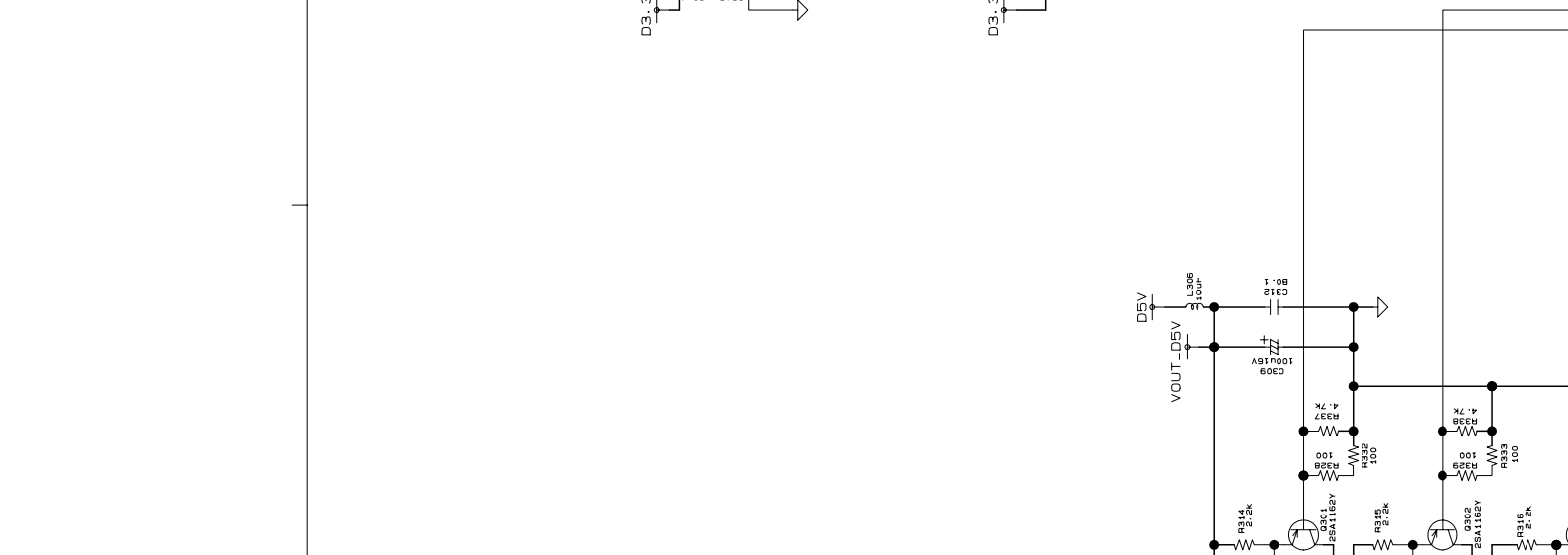
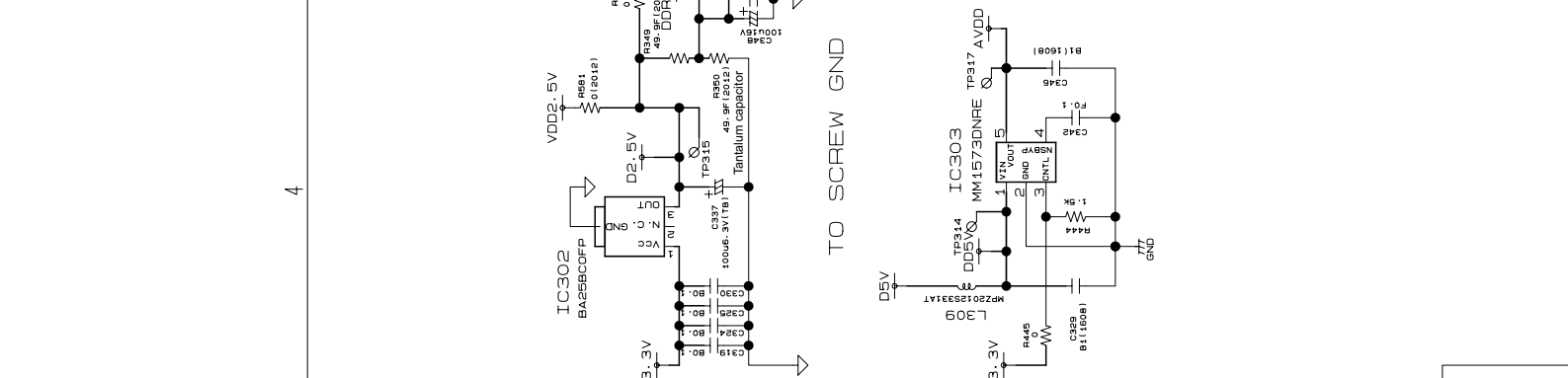
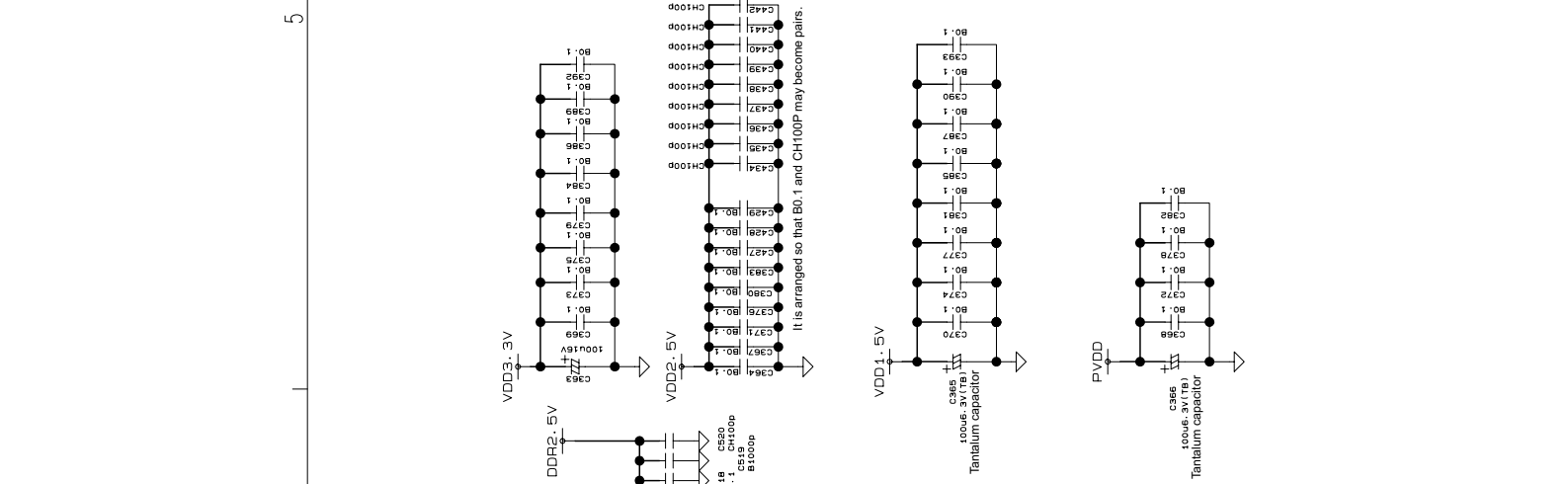
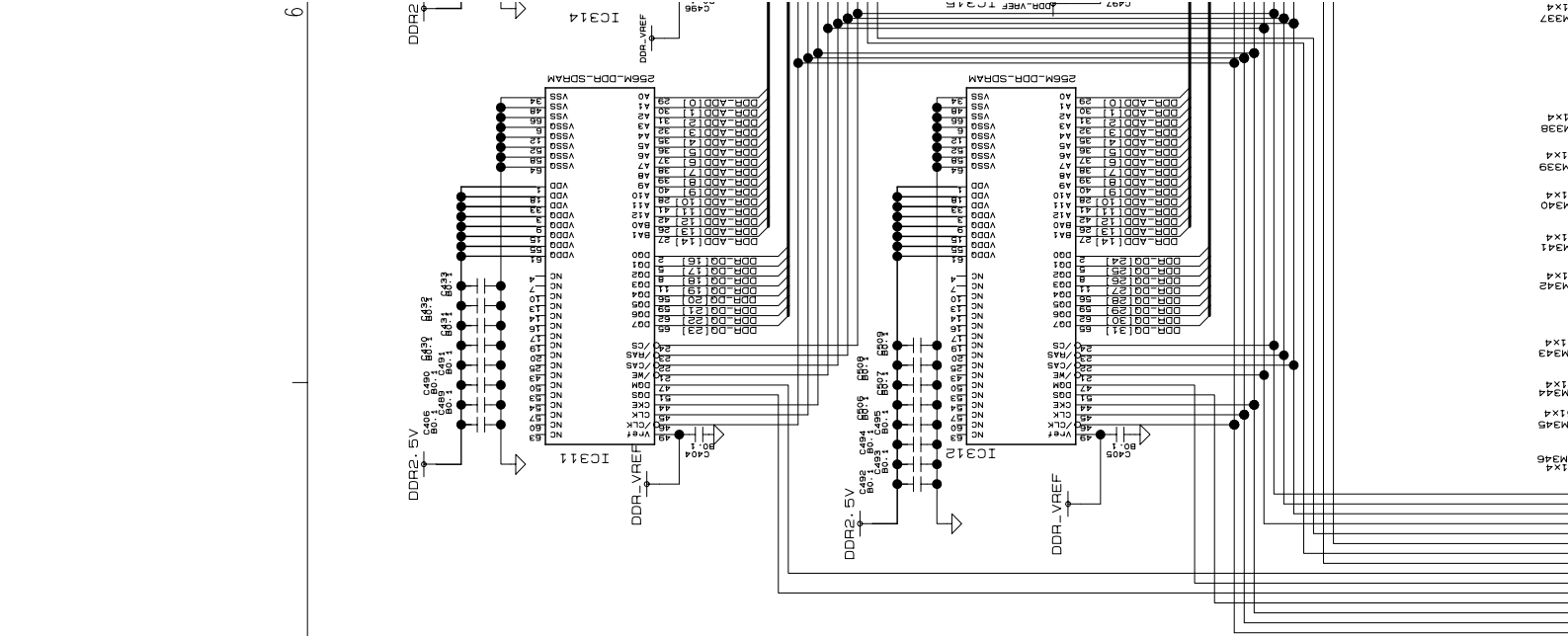
Fig. 3-4-4

4-3. Digital Circuit Diagram



3





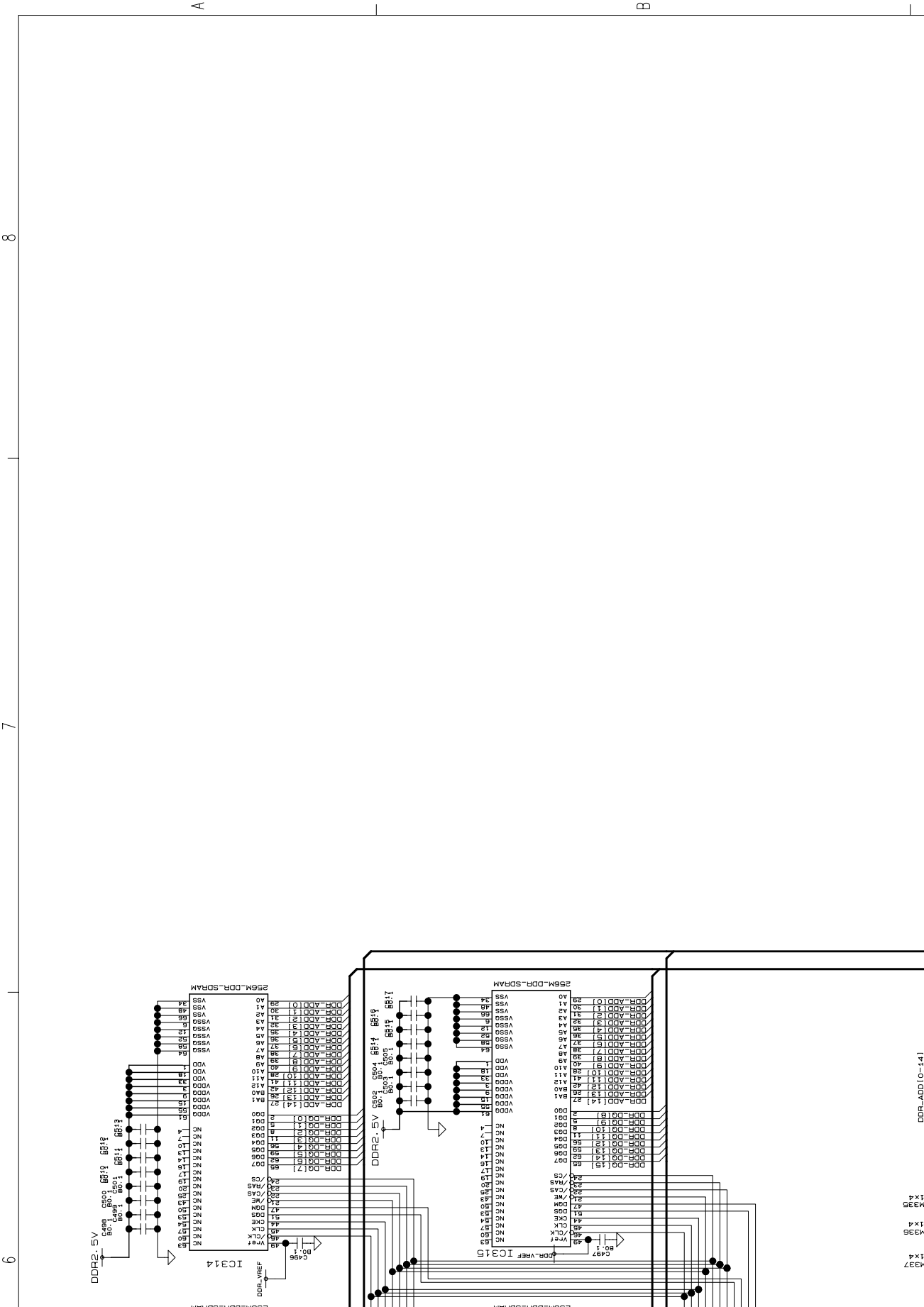
4

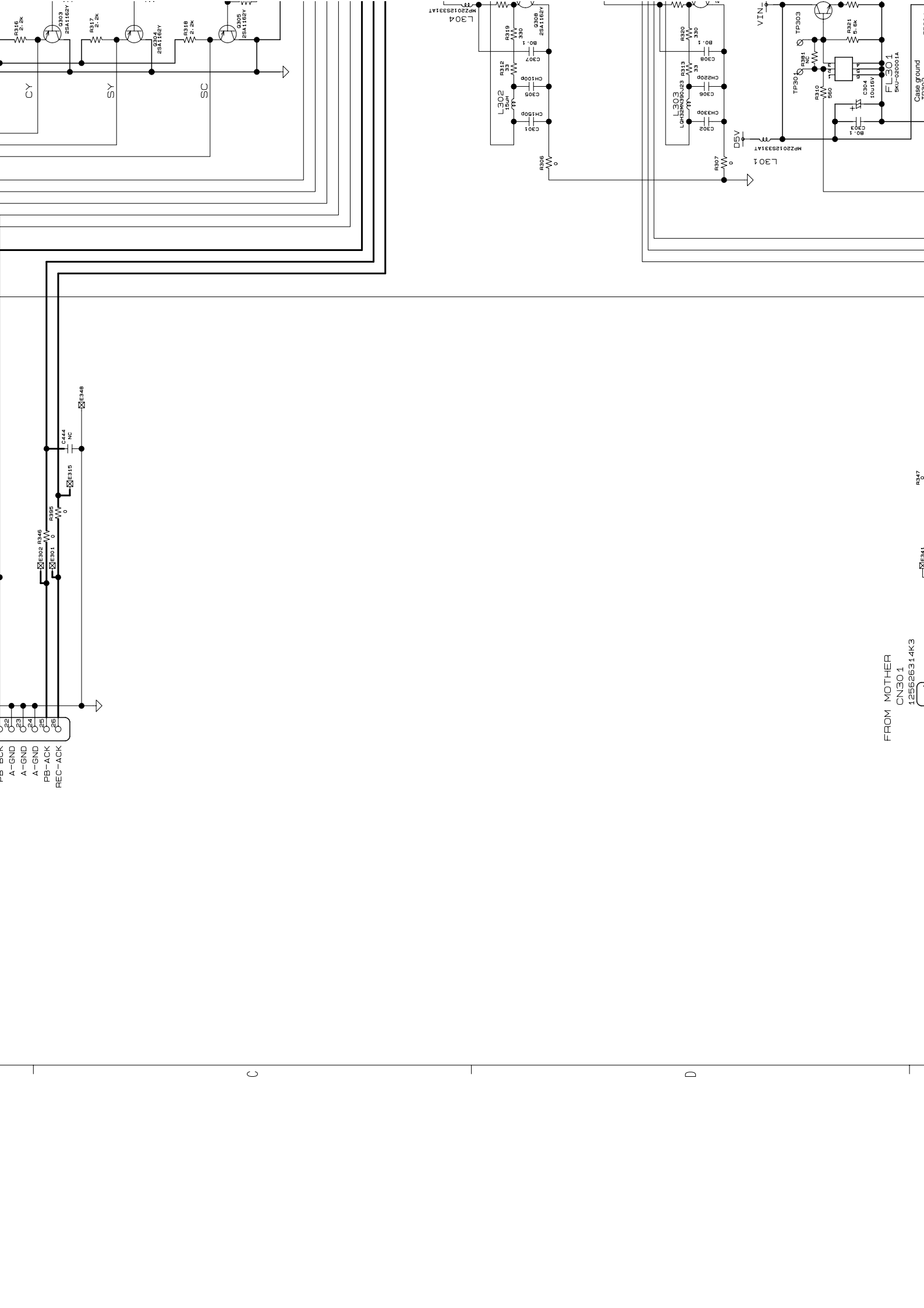
5

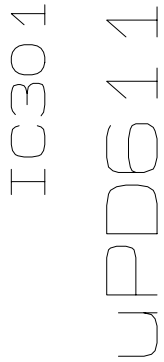
6

TO SCREW GND

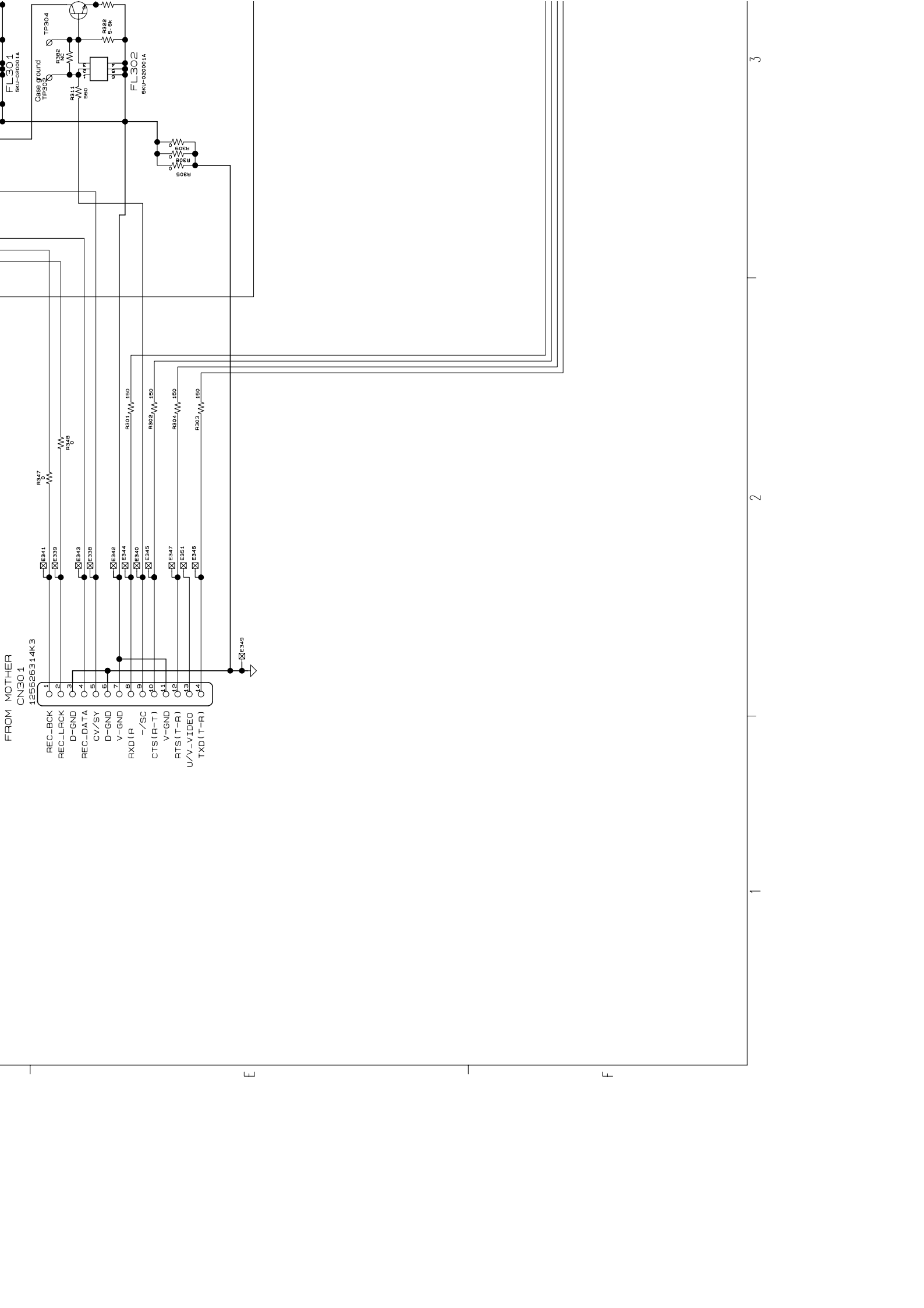
It is arranged so that B0.1 and CH100P may become pairs.

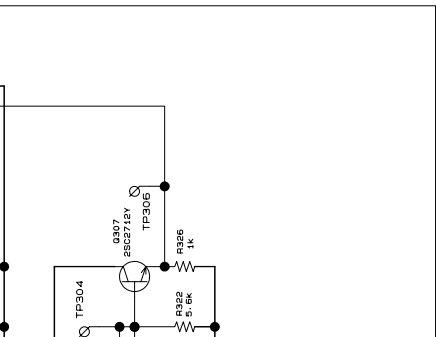












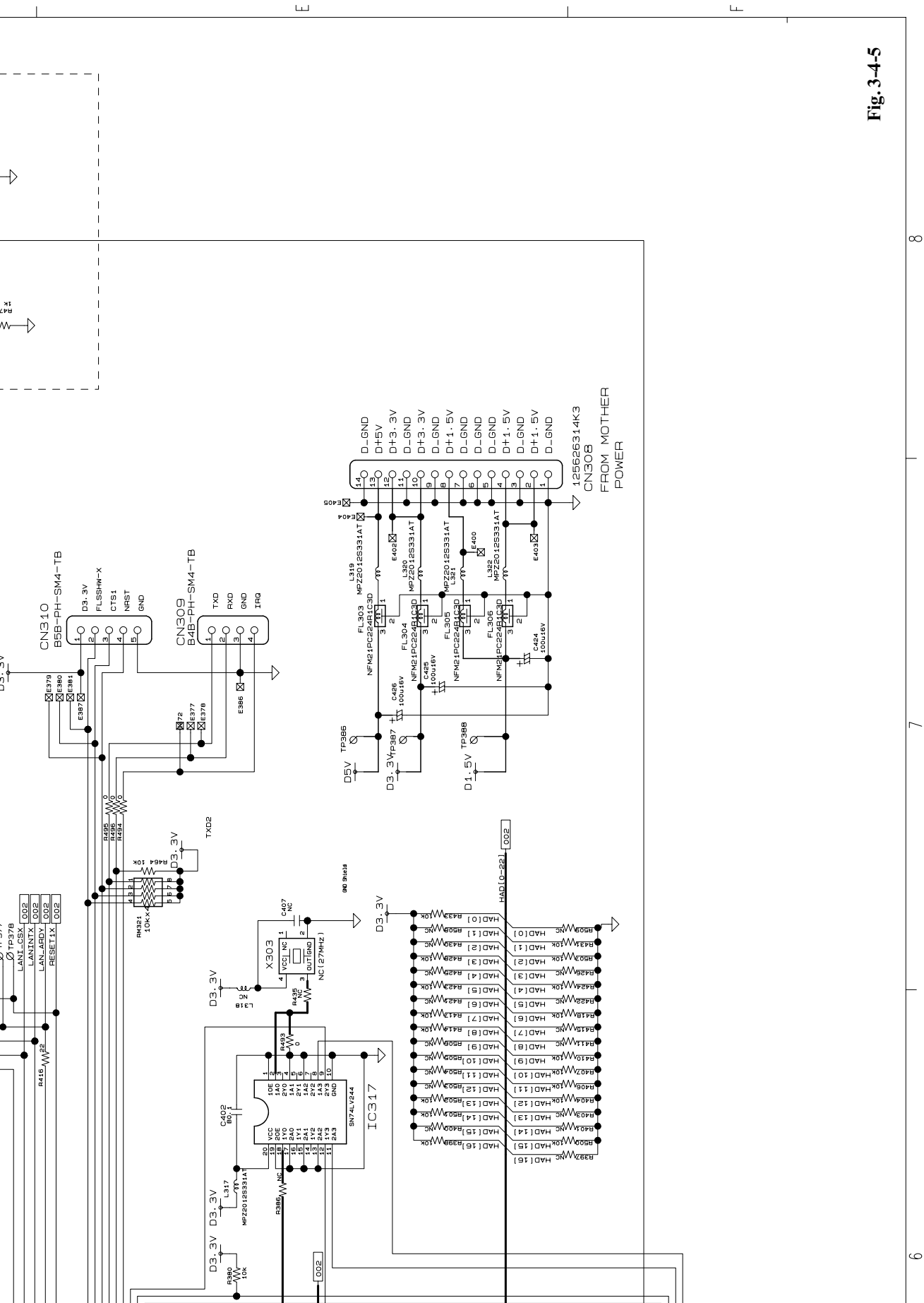


Fig. 3-4-5

4-4. Mother Circuit Diagram

4-4-1. Audio Circuit Diagram

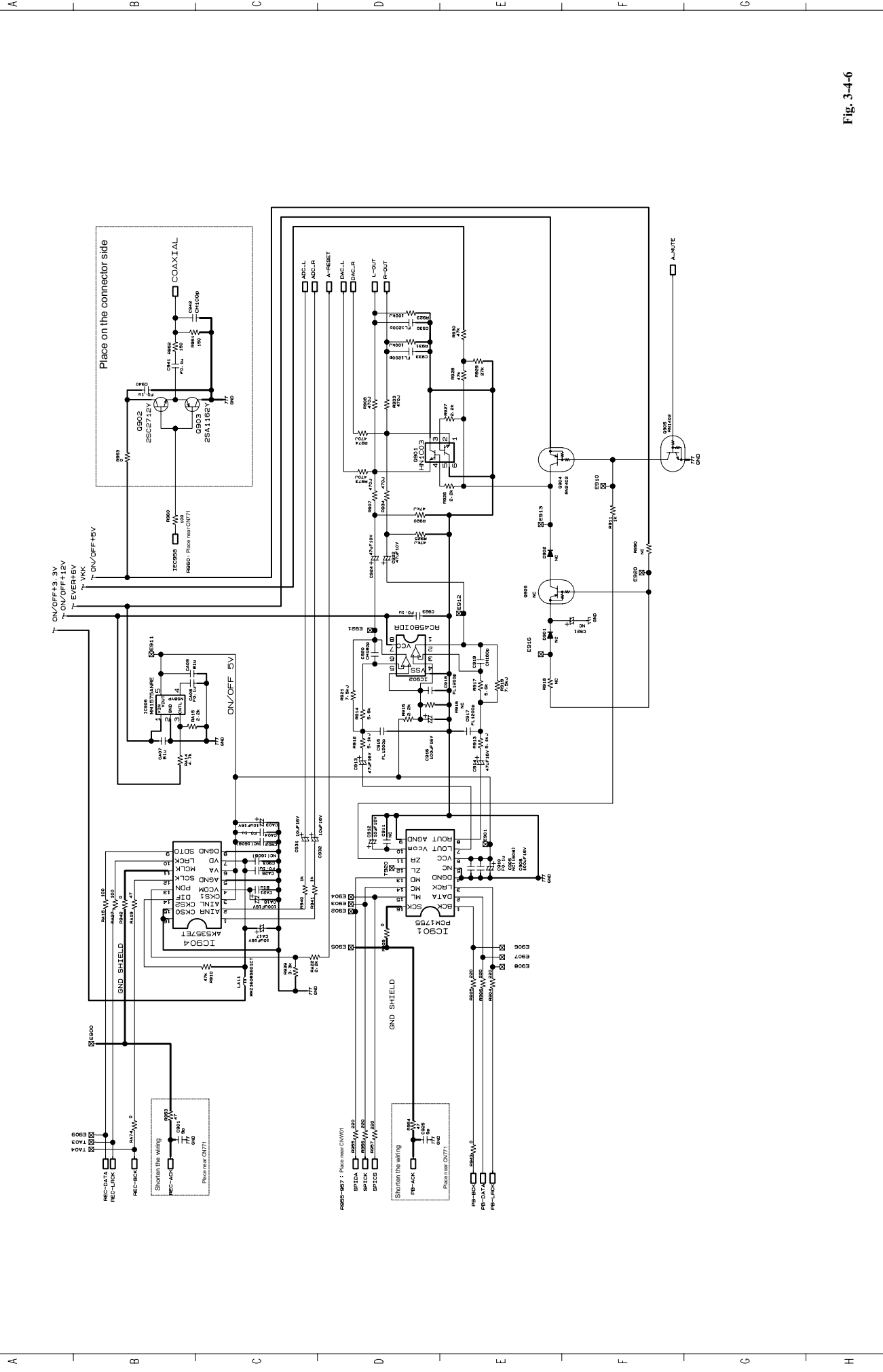


Fig. 3-4-6

4-4-2. Timer Circuit Diagram

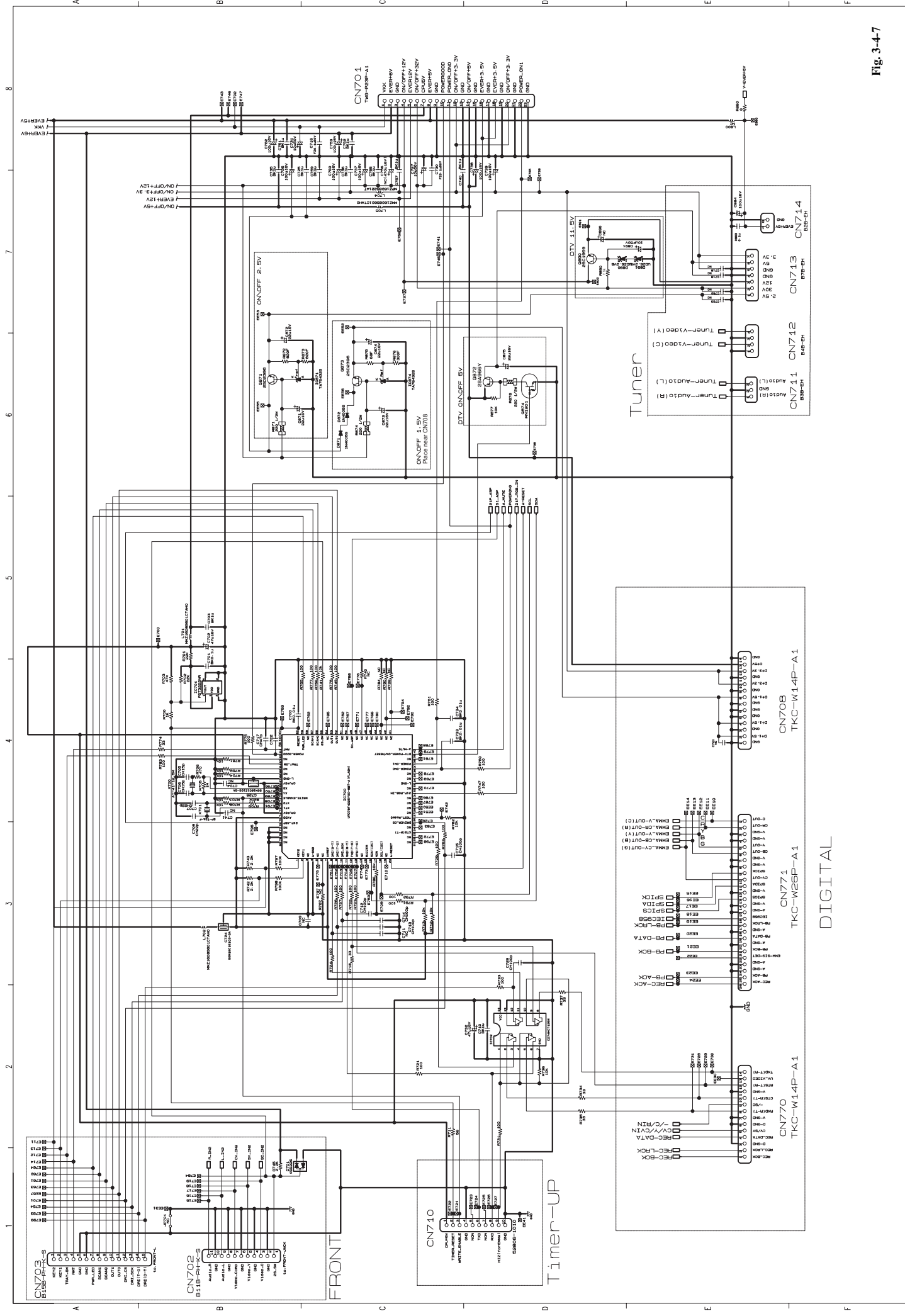


Fig. 3-4-7

4-4-3. Video Circuit Diagram

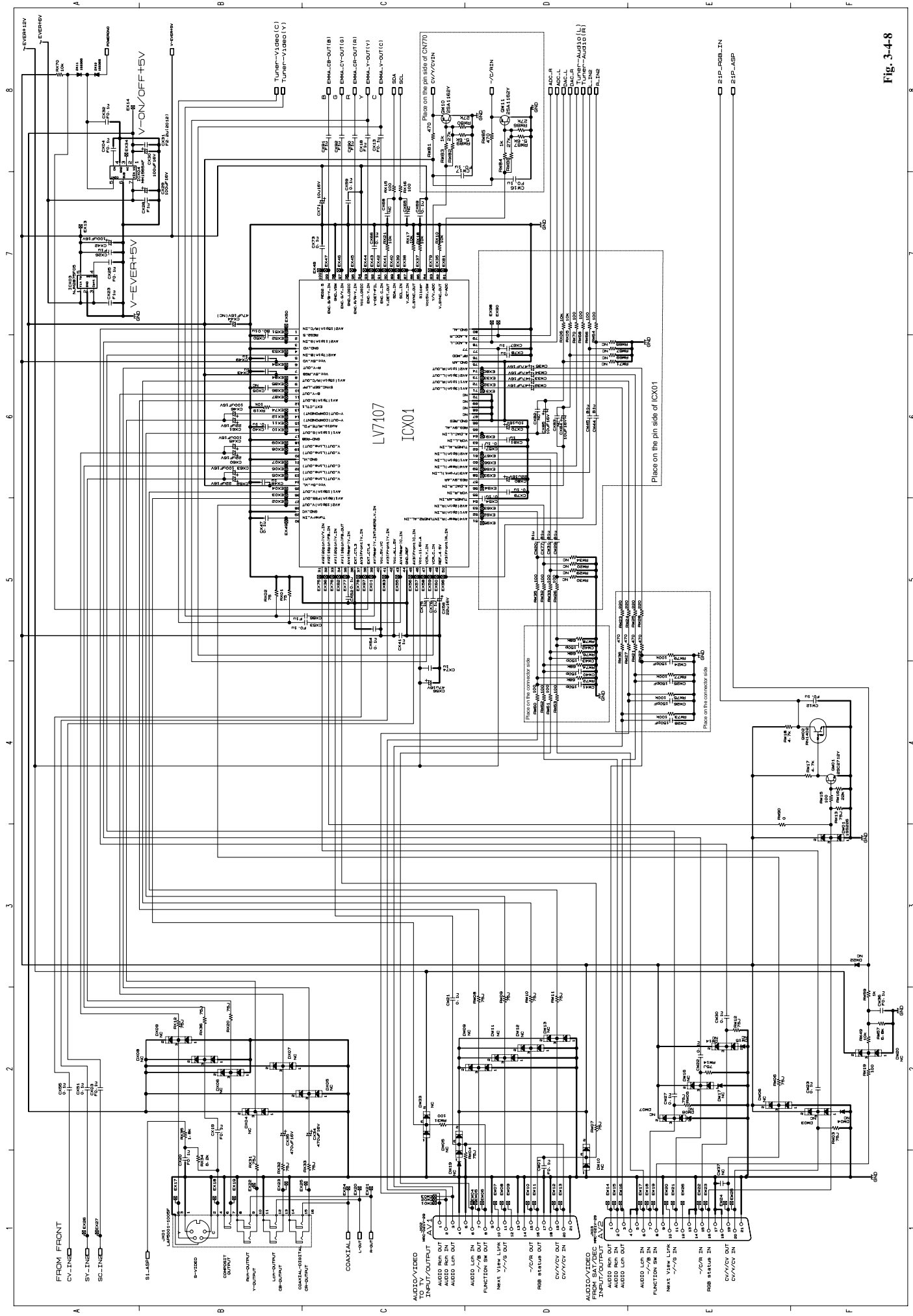
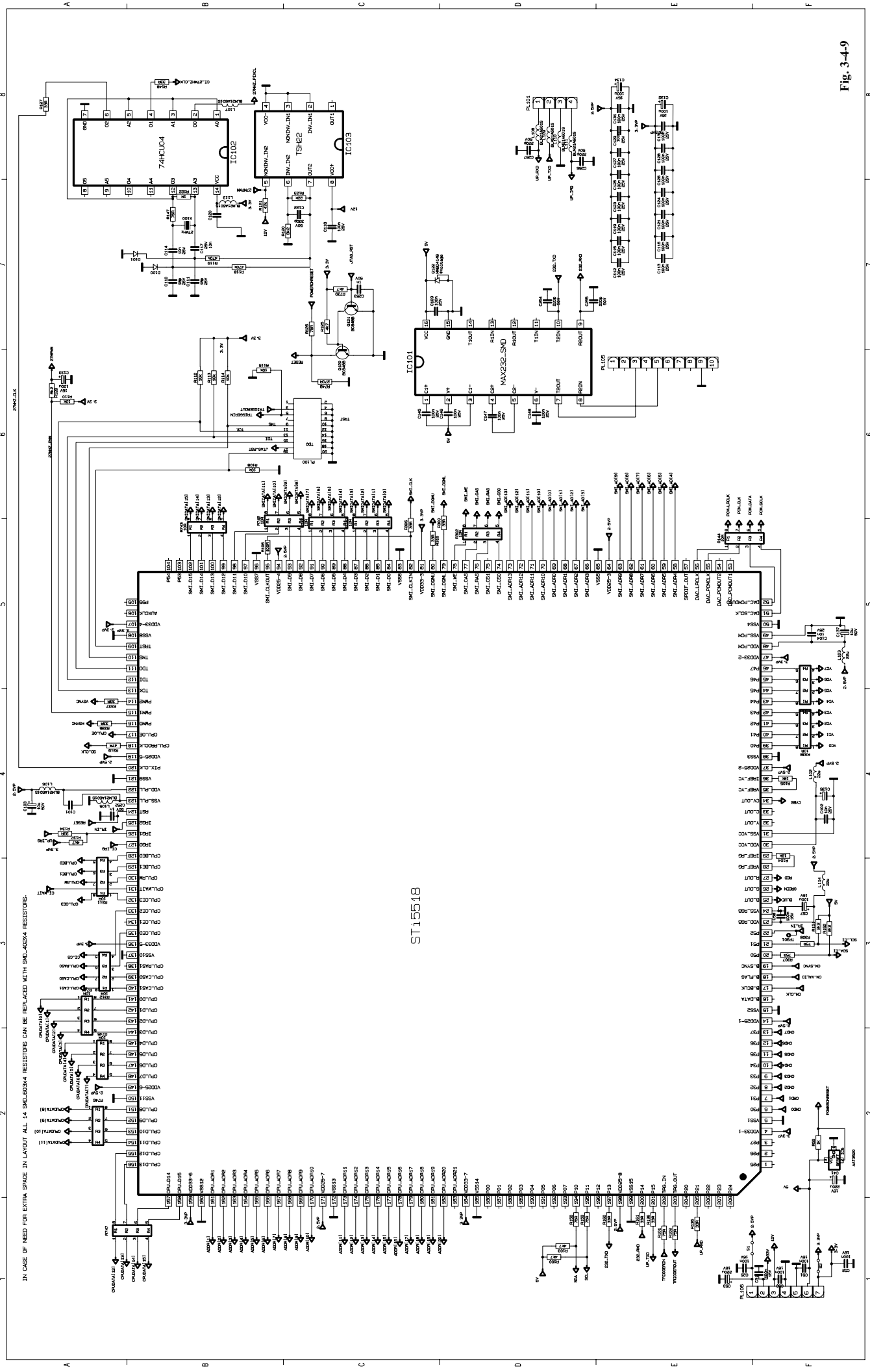


Fig. 3-48

4-5. Digital Tuner Module Circuit Diagram

4-5-1. Digital Tuner Module Circuit Diagram (1)



4-5-2. Digital Tuner Module Circuit Diagram (2)

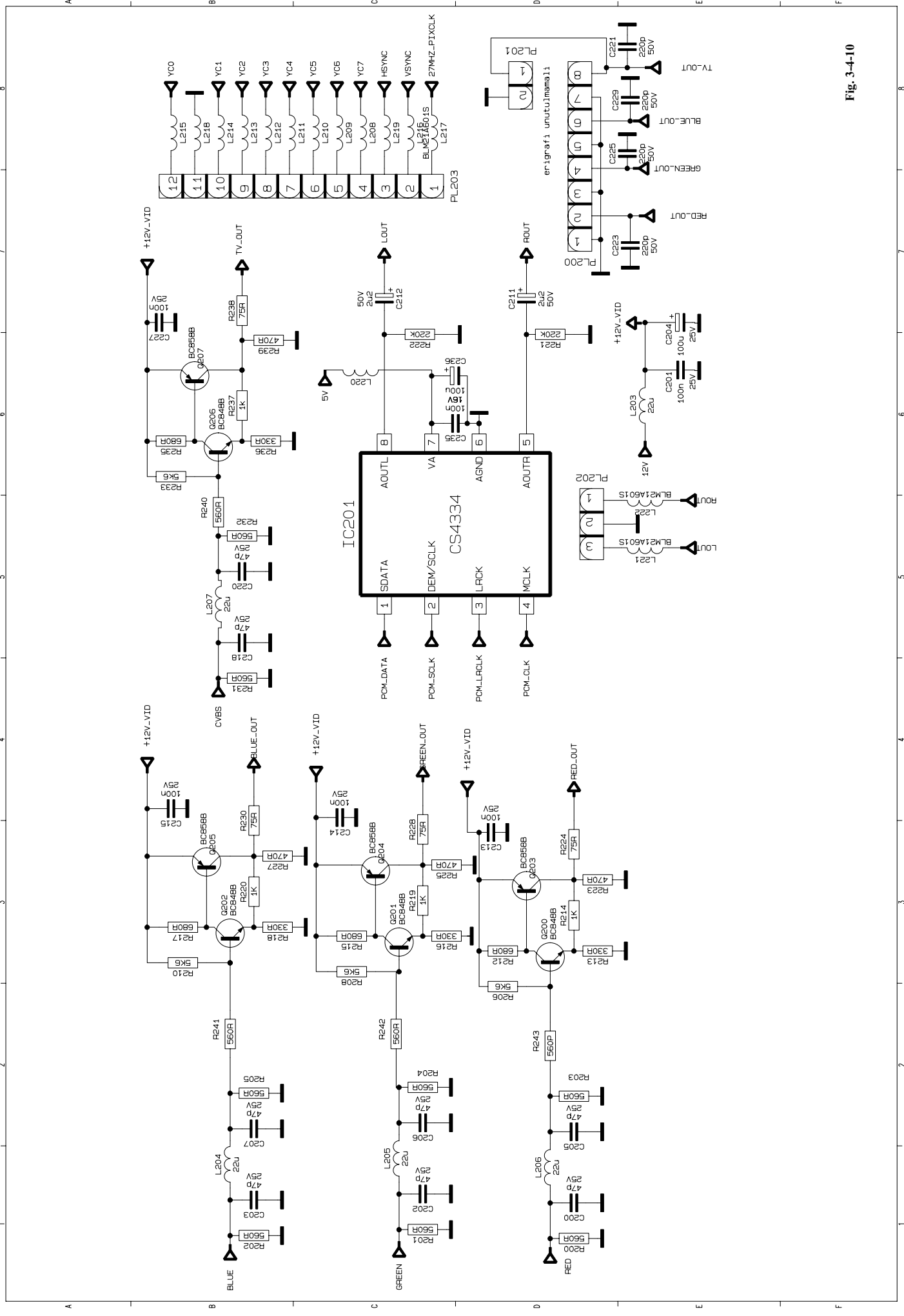


Fig. 3-4-10

4-5-3. Digital Tuner Module Circuit Diagram (3)

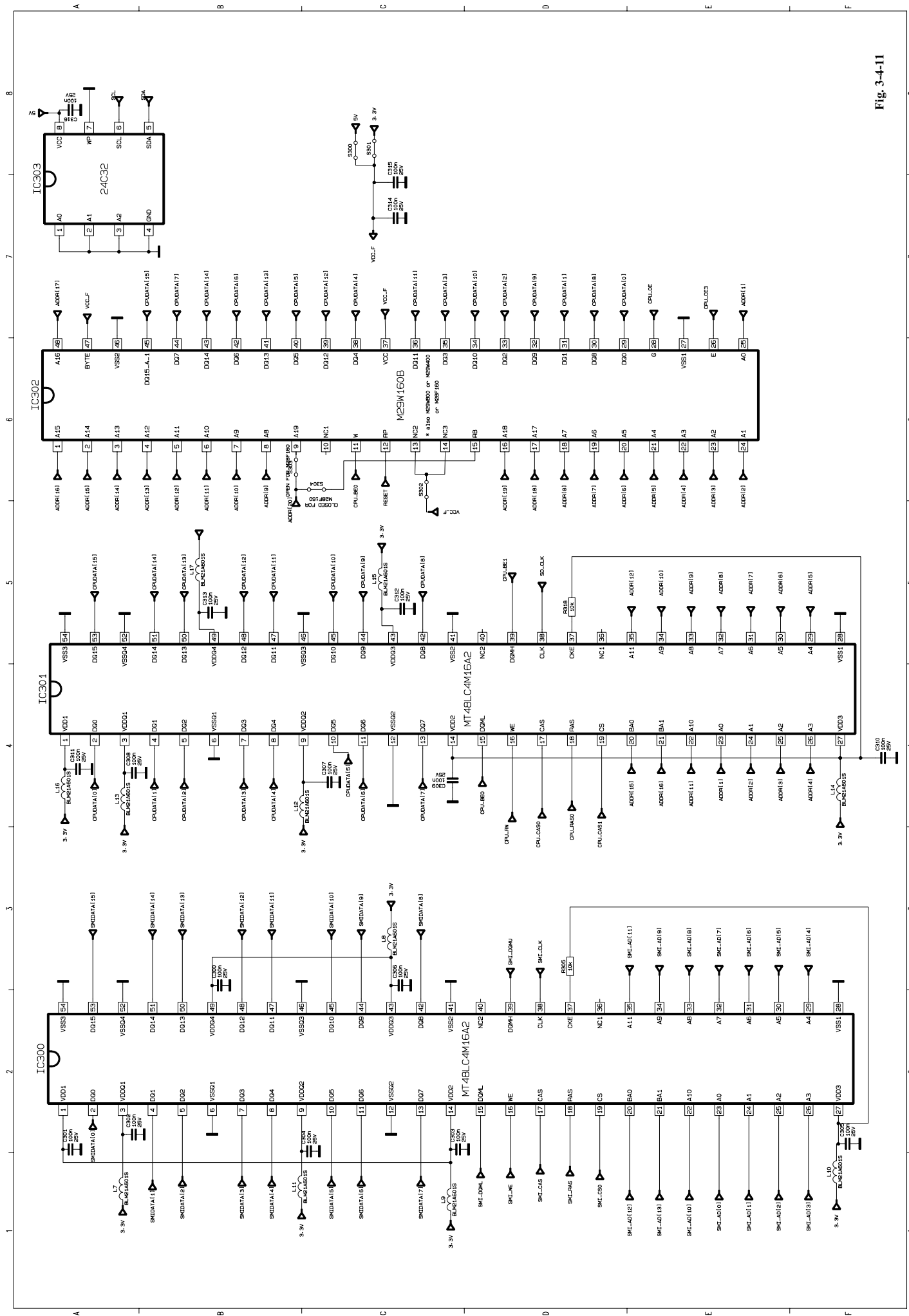
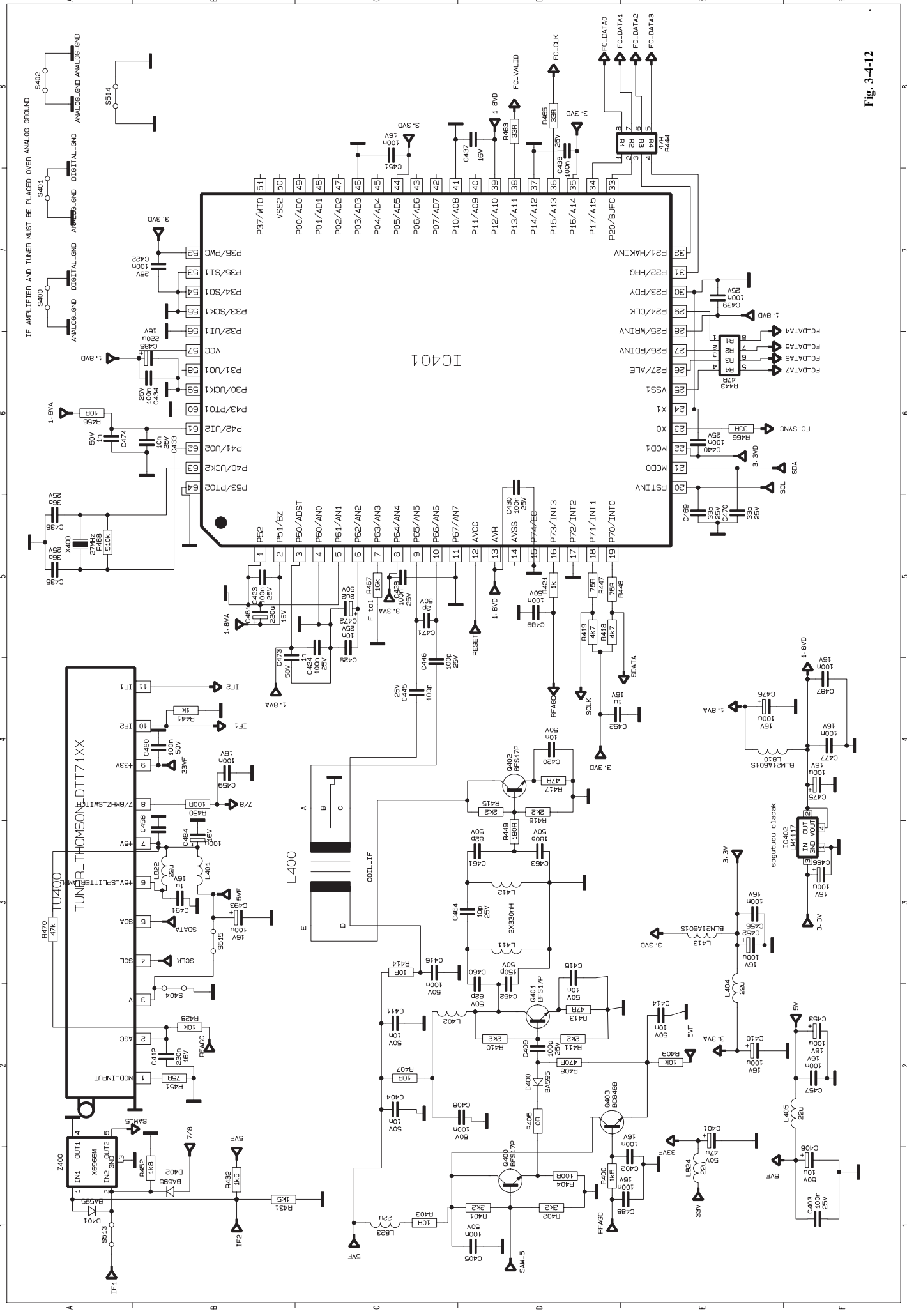


Fig. 3-4-11

4-5-4. Digital Tuner Module Circuit Diagram (4)



4-5-5. Digital Tuner Module Circuit Diagram (5)

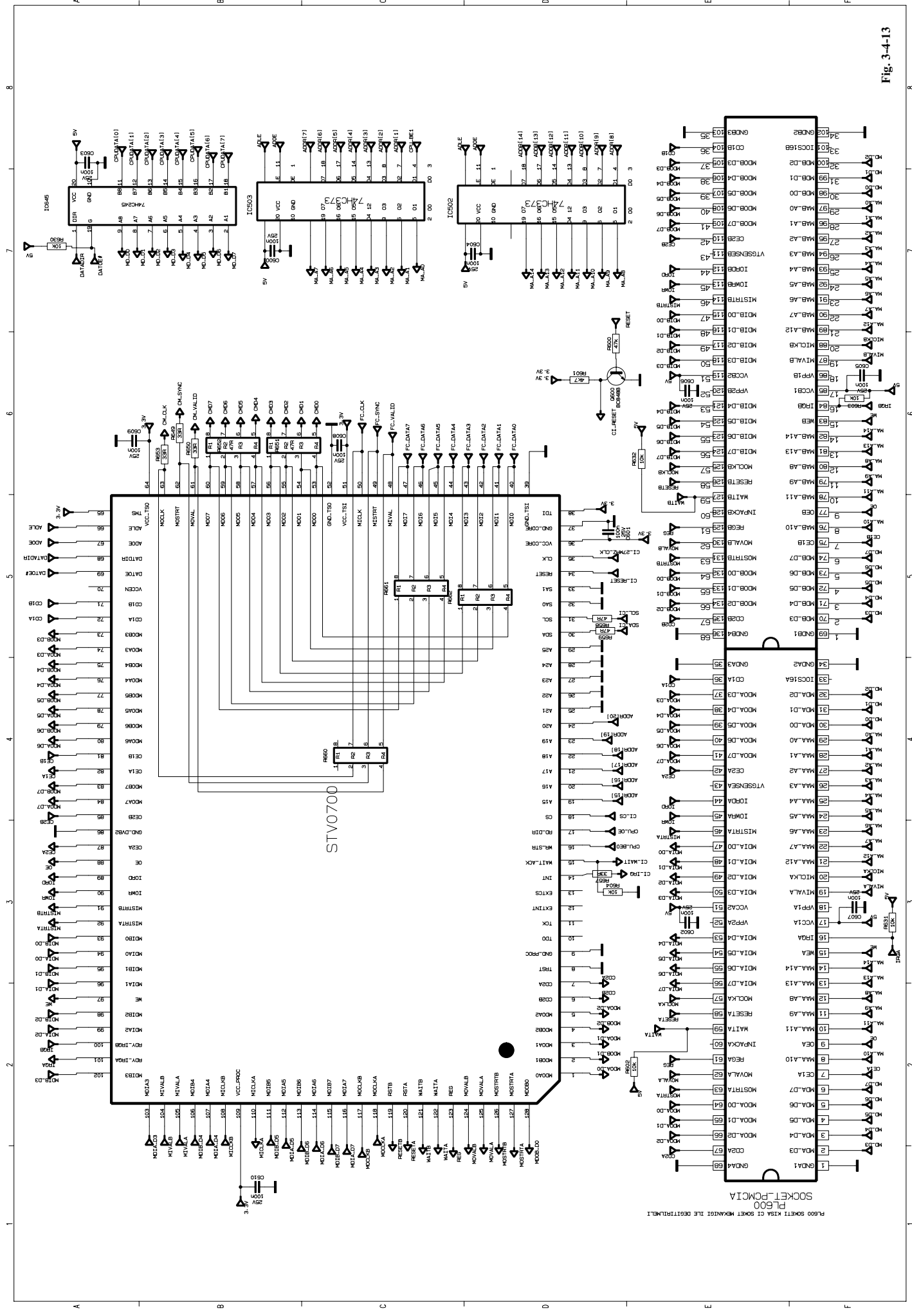


Fig. 3-4-13

5. PC BOARDS

5-1. Front Jack PC Board

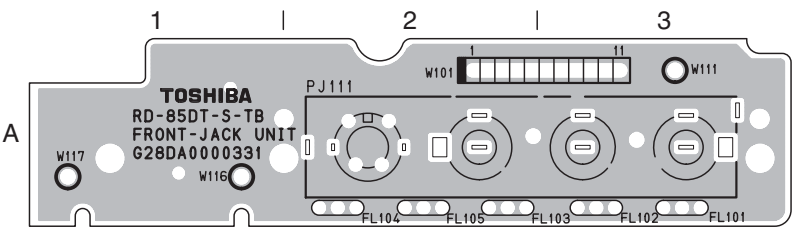


Fig. 3-5-1 EU03C Front Jack PC Board (Top side)

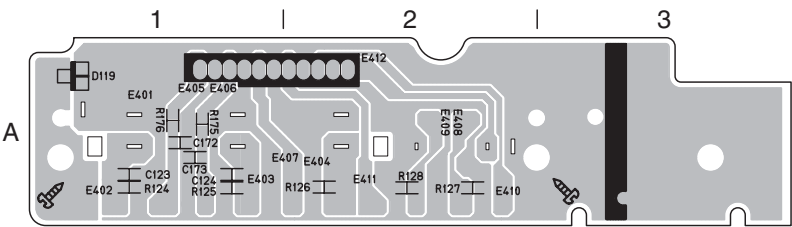


Fig. 3-5-2 EU03C Front Jack PC Board (Bottom side)

5-2. Front (L) PC Board

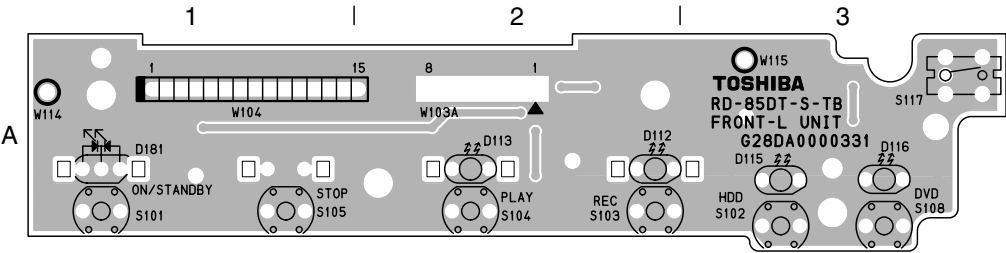


Fig. 3-5-3 EU03B Front (L) PC Board (Top side)

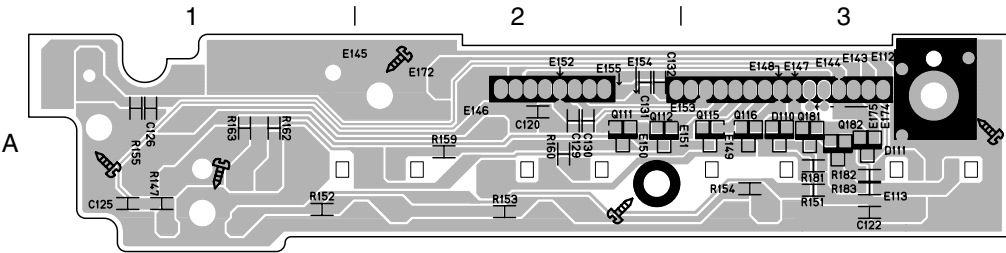


Fig. 3-5-4 EU03B Front (L) PC Board (Bottom side)

5-3. Front (R) PC Board

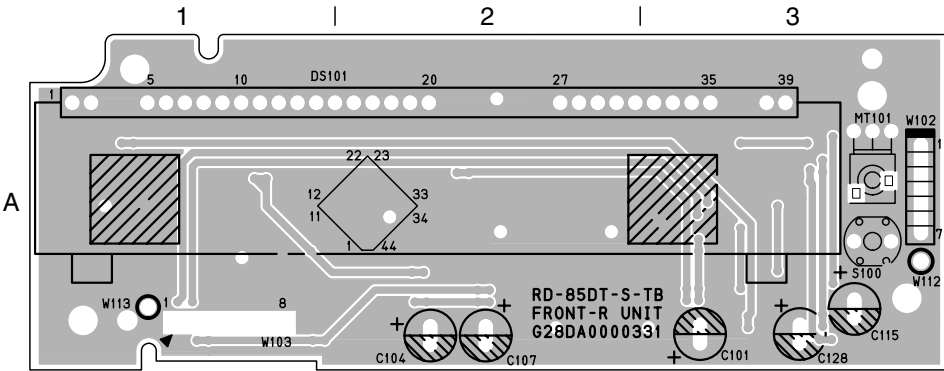


Fig. 3-5-5 EU03A Front (R) PC Board (Top side)

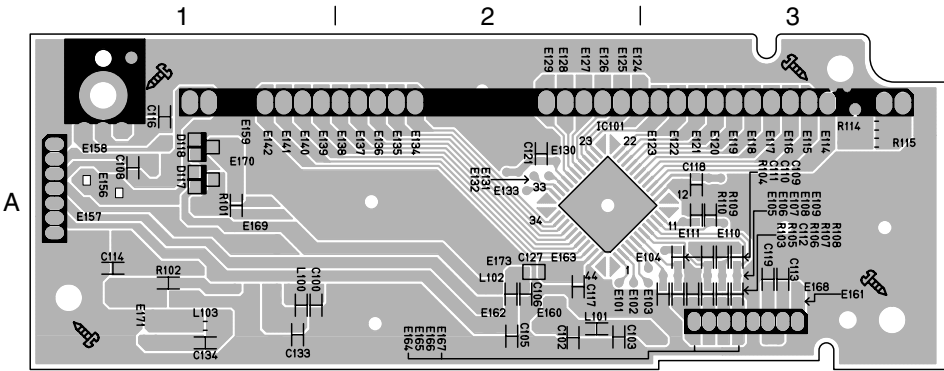


Fig. 3-5-6 EU03A Front (R) PC Board (Bottom side)

5.4. Digital PC Board

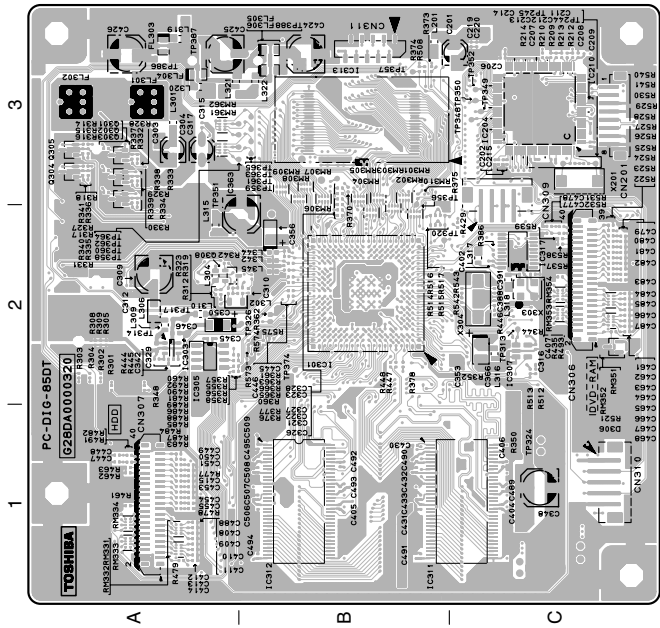


Fig. 3-5-7 EU01 Digital PC Board (Top side)

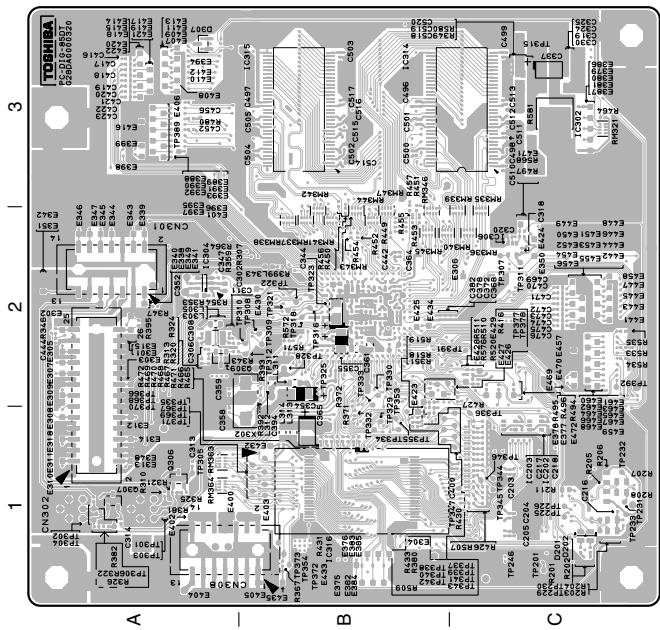


Fig. 3-5-8 EU01 Digital PC Board (Bottom side)

5-5. Mother PC Board

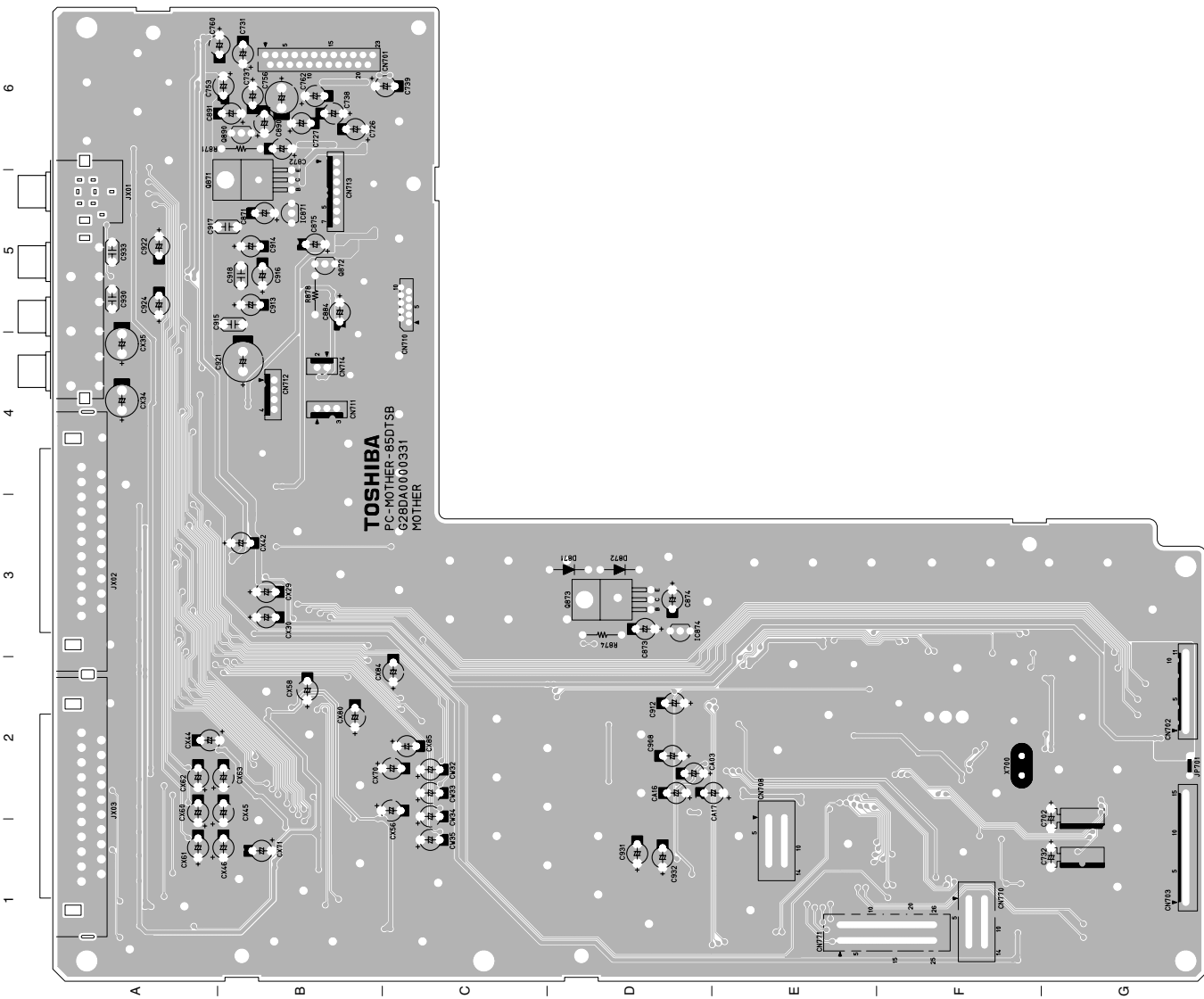


Fig. 3-5-9 EU05 Mother PC Board (Top side)